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THE CURRENT STATUS OF
***Talinum rugospermum* Holzinger**
IN ILLINOIS



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TALINUM RUGOSPERMUM

I. SPECIES INFORMATION

1. Classification and Nomenclature

The genus *Talinum* is composed of about 50 species, occurring in tropical, subtropical, and temperate regions of both the northern and southern hemispheres; 47 species were recognized in the most recent world-wide taxonomic revision (Poellnitz 1934). The genus is particularly well developed in North America, especially Mexico. Nine species occur in the eastern United States (Bogle 1969; Gleason & Cronquist 1991), with three species in Illinois (Mohlenbrock 1986). The following list is based on Bogle (1969), with additional information from Barkley (1986), Cochrane (1993), Gleason & Cronquist (1991), Reinhard & Ware (1989), Rydberg (1932), Ware (1967, 1991), and Ware & Pinion (1990).

SPECIES OF *TALINUM* IN THE EASTERN UNITED STATES

Flat-leaved species frequent in lowlands

T. paniculatum (Jacquin) Gaertner (Old & New Worlds, Florida to Arizona, West Indies, Mexico, Central America, South America)

T. triangulare (Jacquin) Willdenow (southern. Florida and Keys, West Indies, Mexico, Central America, South America)

Cylindrical-leaved herbaceous rock plants — east of Mississippi River

T. teretifolium Pursh (serpentine barrens of southeastern Pennsylvania southward in acid soils to granite outcrops of the Piedmont of the Carolinas and Georgia to the Alatomaha Grit region of Georgia)

T. calcaricum Ware (shallow soils at margins of limestone exposures in cedar glades of middle Tennessee and northern Alabama)

T. Mengesii Wolf (sandstone or granite outcrops in Alabama, Georgia, and Tennessee)

T. appalachianum Wolf (granite outcrops along the Coosa River in two counties of Alabama); perhaps merely a disjunct population of *T. parviflorum*.

Cylindrical-leaved herbaceous rock plants — mostly west of Mississippi River

T. calycinum Engelman (southern Illinois, Missouri and Arkansas to Montana, Nebraska, Kansas, Oklahoma, Texas, New Mexico, and Mexico)

T. parviflorum Nuttall (southern Illinois, Arkansas to Minnesota and North Dakota, westward to Colorado, Texas, Arizona, and possibly Mexico)

T. rugospermum Holzinger (northwestern Indiana, Illinois, northeastern Iowa, Wisconsin, southeastern Minnesota, and apparently disjunctly in central Nebraska, south central Kansas, and extreme eastern Texas).

Plants referable to the last species, *Talinum rugospermum*, were included (as *T. teretifolium*) in early lists of plants from Illinois, such as Vasey (1861) and Patterson (1874, 1876). In 1899, Holzinger described the plants from the Mississippi Valley as a new species, *T. rugospermum*. This species is distinguished from *T. teretifolium* by the following characters (information from Holzinger 1899, 1900; Cochrane 1993; Fassett 1928; Fernald 1950; and Gleason & Cronquist 1991).

<i>T. rugospermum</i>	<i>T. teretifolium</i>
anthers subglobose	anthers elongate
stigmas deeply 3-lobed, the segments linear	stigmas not deeply lobed, capitate
seeds minutely roughened and strongly wrinkled	seeds minutely roughened, not wrinkled
flowering from 3—6:30 p.m.	flowering from 12—3 p.m.
inflorescences with 2 or 3 (rarely 4) branches; branches with 1—4 pairs of bracts that apparently have hidden aborted flowers in their axils	inflorescences with 3 or 4 (rarely 2) branches; bracts only with branches or developed flowers in their axils
leaves terete when pressed for herbarium specimens and then 0.5-1 mm (rarely 1.5) broad, with an abrupt curved mucronate tip	leaves flattened when pressed and then 1-2 mm broad, acute or rounded at the tip, rarely mucronate

In Illinois, *Talinum rugospermum* is the only species of the genus found in central and northern Illinois (Maps 1, 2). The other two species are confined to southern Illinois — *T. parviflorum* in Calhoun, Johnson, Pope, and Union counties and *T. calycinum* in Randolph county. The last species is listed as endangered in Illinois. Several common names are used for *T. rugospermum*, “flower-of-an-hour” (Mohlenbrock 1986), “fameflower” (Swink & Wilhelm 1979), and “rough-seeded fameflower” (Cochrane 1993).

2. Present State and Federal Status

Talinum rugospermum is considered a Category 2 Federal Candidate Species (U.S. Fish and Wildlife Service 1990). It is listed as Endangered in Indiana (Indiana Department of Natural Resources 1990), Iowa (Roosa et al. 1989), and Minnesota (Coffin & Pfannmuller 1988). In Wisconsin it is considered a species of “Special Concern” (Wisconsin Natural Heritage Program 1992).

3. A. Geographical Distribution and Habitats

Talinum rugospermum occurs in northwestern Indiana, Illinois, northeastern Iowa, Wisconsin, southeastern Minnesota, and apparently disjunctly in central Nebraska, south central Kansas, and extreme eastern Texas (it is unclear whether the plants are native or introduced in Texas, see Cochrane 1993)(Map 3). Except for the populations in Nebraska, Kansas, and Texas, all populations of *T. rugospermum* occur north of the maximum extent of the Illinoian Pleistocene glaciation. Most populations occur north of the maximum extent of the Wisconsinan glaciation, the exceptions being populations in Henderson and Mason counties, Illinois.

In Illinois, *Talinum rugospermum* has been reported with certainty from 15 counties (Map 1). Mohlenbrock & Ladd (1978) and Cochrane (1993) show this species as occurring in Sangamon County; however, we have seen no specimens from this county, and these reports are probably the result of mistaking Sangamon County for the adjacent Menard County when preparing the maps.

While *Talinum rugospermum* is a species of sandy soil, it does not occur in all areas in Illinois where there are sand deposits. In particular, this species is not known from the following counties that have extensive deposits of sand, especially windblown sand (Willman & Frye 1970): Bureau, Cass, Grundy, Henry, Lake, Tazewell, and Will.

B. Occurrences in Illinois

a. Populations currently or recently known extant

Below are brief locations for specimens in Appendix 1; also see Table 1.

Carroll Co.: 1) Ayres Sand Prairie Nature Preserve—In the north central part of the preserve numerous flowering and non-flowering plants of *Talinum* were found in open sand areas (but not with *Hudsonia tomentosa*) both to the south and north of the low ridge that runs from east to west through the preserve (Gehlhausen et al. 103).

2) Savanna Army Depot—Two populations were found in the Carroll County part of the Depot property (Gehlhausen et al. 89, Phillippe et al. 22284). A comprehensive survey of the Depot for this species was not possible during this project, but according to Marlin Bowles (personal communication), *T. rugospermum* can be found in numerous sites in the Depot. According to Bowles & Jones (1991), *T. rugospermum* often occurs together with *Hudsonia tomentosa* and *Cristatella jamesii* in blowouts and open sand savanna habitat, although we noticed *Talinum* is often in more stable sand.

3) French Woods Hill Prairie—This is the only known population of *T. rugospermum* from a hill prairie in Illinois, where it occurs in sandy soil on steep southwest facing slopes (Phillippe et al. 22318). *Juniperus virginiana* was the dominant tree in the area and *Talinum* grew near and in some cases beneath the junipers.

Henderson Co.: Big River State Forest—The oldest herbarium specimen for *T. rugospermum* in Illinois is from near Oquawka by Patterson in 1871, and this species (as *T. teretifolium*) was included in Patterson's publications (1874, 1876). Presumably these plants are from the same population later collected by Evers in 1952 and 1975, Koelling in 1975, and the extant population known today in what is now Big River State Park (Robertson & Bouseman 4323; Robertson 4993; Robertson & Robertson 5024). *Talinum rugospermum* is found in at least six sand blowout areas in a large sand prairie. Parts of this area were accidentally burned this spring, and *T. rugospermum* was found in areas that had been burned. While mostly confined to blowouts, a few *T. rugospermum* were found in flat areas between the blowouts. Associated species are given in Table 2.

Iroquois Co.: 1) Iroquois County Conservation Area—A small population of *T. rugospermum* was found in exposed sand on south facing slopes in three successive swales located within a densely forested area in that part of the Conservation Area located south of County Road 3300N (Gehlhausen & Phillippe 57).

2) Hooper Branch Savanna Nature Preserve—Three populations of *T. rugospermum* were found here in exposed areas of sand prairie openings in the black oak savanna (Gehlhausen & Phillippe 46, 52; Phillippe & Gehlhausen 22651). Extensive sampling was done at one population (see Table 3), where it is estimated that more than 3,000 plants occur. Associates of two populations of *Talinum* are listed in Table 2. There is additional suitable habitat in the nature preserve, and further searching could discover additional populations.

Jo Daviess Co.: Savanna Army Depot—Two populations were found in the Jo Daviess portion of the Depot (Phillippe et al. 22315, Gehlhausen et al. 100), both in open areas of sand prairies. One population contained over 200

flowering plants and was spread over an area of an acre or so. As noted above under Carroll County, undoubtedly other populations of *T. rugospermum* exist in the Depot.

Kankakee Co.: 1) Guiding Star Cemetery Natural Area— Three populations of *T. rugospermum* were found in the vicinity of this natural area (Robertson & McKay 4989, Phillippe & Gehlhausen 21940; Phillippe & Gehlhausen 21944; Phillippe & Gehlhausen 21918). All were fairly large, with one exceeding 1,000 plants. Plants were most abundant in areas along black oak tree lines.

2) north of Leesville Savanna West Natural Area—a large population of more than 1,000 plants occurs mostly around the western edge of a sand blowout area (Gehlhausen & Phillippe 71; Robertson 5022). Some plants occurred in the middle of an access lane. *Talinum* was growing in exposed sand next to and even underneath black oak trees.

3) Southwest of Leesville— A small population, discovered by Wilhelm & Byrne in 1977, occurs on both sides of 1700 E (Phillippe & Gehlhausen 21954). On the east border of the road the plants were growing on a small sandy rise and on the west side of the road they occurred in an open swale.

4) West of Leesville—This population, discovered by Dritz & Wilhelm in 1984, is on both sides of a road cut through a sand dune (Phillippe & Gehlhausen 21945). The population extended back well into this sparsely forested dune. More than 500 plants were counted, most seen on the north side of the road.

La Salle Co.: 1) Starved Rock State Park—On Starved Rock proper. (Robertson 5063). Several historical records of *T. rugospermum* exist from Starved Rock, between 1909 and 1938. The species still occurs on the Rock, in spite of the heavy use by visitors, on thin sandy soil and on the faces of sandstone ledges only 10–25 feet off the stairs and between 18 and 50 steps from the top. Only 7 flowering and 1 non-flowering plants were seen, but others probably occur on more inaccessible parts. Associates include: *Potentilla recta*, *Lepidium virginicum*, *Sedum sarmentosum*, *Selaginella rupestris*, and *Silene antirrhina*.

2) Starved Rock State Park—St. Louis Canyon. Fuller collected *T. rugospermum* at St. Louis Canyon in 1941, and a small population was located in 1993 (Robertson 5069). This area is at the top of the bluff trail on the north side of the canyon and then back about 50 feet west on a small branch trail through sand, with *T. rugospermum* growing at the edge of the trail. Associates include: *Helianthus occidentalis*, *Selaginella rupestris*, and *Tradescantia ohimensis*.

3) ½ mile west of South Ottawa—This extensive population is located along a roadside that is on the flat top of a low cliff above the Illinois River east of the Cargill grain elevator (Robertson 5043, 5105). *Thuja occidentalis* occurs at the tops of the cliffs, making the area easy to locate from Route 71. Plants of *T. rugospermum* occur in thin sandy soil, sometimes even on top of flat sandstone outcrops, and the area containing *Talinum* is about 50 feet × 500 feet. The area is privately owned (and for sale at the moment) and is mowed 2 or 3 times each year. Some quantitative information on this population was obtained (Table 3). *Coreopsis lanceolata*, *Opuntia humifusa*, and *Selaginella rupestris* are abundant here, with *Artemisia campestris*, *Thuja occidentalis*, and *Aronia melanocarpa* occurring at the top of the cliff; other associates are given in Table 2.

4) 1 mile west of South Ottawa—This population is west of the Cargill grain elevator (Robertson 5058, 5107). The habitat is very similar to the previous population, but there is no mowing and conditions appear undisturbed. See Table 3 for sampling data from this population.

Lee Co.: 1) Nachusa Grassland— There are several outcrops of sandstone, or knobs, in the Grassland, and *T. rugospermum* occurs on most of them. Of the eight knobs visited in Lee County, six had *T. rugospermum*. The only two knobs lacking *Talinum* have the sandstone exposed for nearly 360°, while those with *Talinum* have the sandstone exposed mostly on the north and west sides. As one approaches the two knobs along the trail from the sign along Lowden Road, the easternmost knob is very exposed and has no *Talinum* at all. The second knob, separated from the first by perhaps 100 feet, has soil covering the sandstone on the east and south sides and supports a population of 500 or more plants of *T. rugospermum* (Robertson 5093). The next few knobs along the trail have a few plants of *T. rugospermum*, while three knobs to the north and west have hundreds of plants (Robertson 5100 collected from northern most knob). No plants of *T. rugospermum* were observed in the sand prairie at Nachusa Grassland. Associates include: *Krigia virginica*, *Linaria canadensis*, *Plantago aristata*, *Plantago patagonica* var. *brevicarpa*, *Potentilla recta*, *Rumex acetosella*, and *Selaginella rupestris*.

2) Reuter Road— 1.2 miles north of Union Road and about 600 feet south of Brewster Road (Robertson 5074). The population of *T. rugospermum* occurs for about 150 feet along a road cut through sandy soil, about half way up the bank. Plants of *Talinum* occur primarily on the east side of the road, although a few plants are also found on the west side. A degraded black oak savanna occurs eastward beyond the road cut; plants of *Talinum* are often clustered at the bases of small black oak saplings along the roadside. There is much *Bromus inermis* in the area. Evidently the population has decreased in size recently, based on descriptions of Michael Jones and Helen Reuter. Associates include: *Amorpha canescens*, *Coreopsis palmata*, *Erigeron strigosus*, *Hedeoma hispida*, *Heterotheca camporum*, *Krigia virginica*, *Lepidium virginicum*, *Linaria canadensis*, *Lithospermum carolinense*, *Potentilla recta*, *Quercus velutina*, *Selaginella rupestris*, and *Tradescantia ohimensis*.

3) Scout Road—0.15 mile south of Brewster Road (Robertson 5088). This population is also along a sandy road cut along a black oak savanna and is on the same low sand ridge as the Reuter Road population. Plants of *T. rugospermum* were on the east side of the road in open sandy areas. The area between the Scout Road and Reuter Road populations is privately owned with extensive degraded black oak savanna, which could contain additional populations of *T. rugospermum*. Associates include: *Amorpha canescens*, *Carex muhlenbergii*, *Cyperus filiculmis*, *Helianthus occidentalis*, *Koeleria macrantha*, *Lespedeza capitata*, *Lithospermum canescens* (possibly *L. carolinense*), *Sedum kamtschaticum*?, and *Tradescantia ohimensis*; *Selaginella rupestris* was absent.

4) Green River Conservation Area— ¼ mile east of Pump Factory Road and ¼ mile south of Union Road (Robertson 5092). This population is located at the east end of a sand prairie in an old north-south lane with exposed sand, just north of the larger east-west lane that intersects Pump Factory Road. Introduced pine trees and a black oak savanna occur adjacent to the west of the old lane. Most *Talinum* plants were located around young black oak saplings

that were ca. 3 feet tall. As this report is being written, Jim Heim, Illinois Department of Conservation, reported that Michael Jones found a subpopulation of *T. rugospermum* south of the east-west lane and only a few hundred feet east of Pump Factory Road.

5) $\frac{3}{4}$ mile south of Grand Detour along Route 2--(Phillippe and Gehlhausen, observation only). *Talinum* was growing with juniper on an exposed outcrop of St. Peter Sandstone in an old pasture. Only 4 plants were seen and they were threatened by impending road construction.

Mason Co.: 1) Sand Ridge State Forest—Henry Allan Gleason Nature Preserve (Gehlhausen & Phillippe 33). Four plants of *T. rugospermum* were found to the north of the large dune that has the population of *Lesquerella ludoviciana*. The plants of *Talinum* were in the more or less flat area, which had been burned this year. Twenty plants of *T. rugospermum* were found just south of where the east-west trail from the parking lot reaches the crest of the first dune. This was an unburned area along a partially shaded oak tree line. Associates in the first area include: *Ambrosia psilostachya?*, *Asclepias amplexicaulis*, *Aster azureus*, *Carex normalis*, *Cassia fasciculata*, *Commelina erecta*, *Crotonopsis linearis*, *Froelichia floridana*, *Krigia virginica*, *Lepidium virginicum*, *Lespedeza capitata*, *Lithospermum caroliniense*, *Opuntia humifusa*, *Panicum* sp., *Physalis heterophylla*, *Quercus marilandica*, *Rhus aromatica*, and *Tradescantia ohiensis*. Other species found in the unburned area include: *Aristida longespica*, *Coreopsis palmata*, *Koeleria macrantha.*, *Liatris* sp., *Linaria canadensis*, *Prunus americana*, *Quercus stellata*, *Solidago nemoralis*, and *Schizachyrium scoparium*.

2) Sand Ridge State Forest—Quiver Prairies Nature Preserve (Gehlhausen & Phillippe 36). *Talinum rugospermum* was found in all three sand prairie openings of the nature preserve, growing on the peripheries of the openings, mostly on the north side; this species does not occur in the middle of the openings. Associated plant species are given in Table 2.

3) Sand Ridge State Forest—near headquarters (Schwegman, personal communication). 14 plants observed in 1993.

Ogle Co.: 1) Castle Rock State Park—on Castle Rock proper (Phillippe & Gehlhausen 22347). Plants of *T. rugospermum* were scattered on St. Peter sandstone near stairs leading to the top of the Rock.

2) Castle Rock State Park—just northeast of Castle Rock proper on exposed St. Peter Sandstone extending out over the Rock River (Phillippe & Gehlhausen 22348). Some plants seemed to be growing on the rock itself, while others were in pockets of eroded sand.

3) Castle Rock State Park— $\frac{3}{4}$ mile north of Phillippe & Gehlhausen 22348 on exposed outcrop of St. Peter Sandstone (Phillippe & Gehlhausen 22354). Most of these plants were growing in partially shaded areas on a rocky hillside. Others were more exposed to the sun on top of the hill.

4) $\frac{3}{4}$ mile east of Castle Rock State Park, one mile west of Daysville and just north of Route 2—abundant on exposed St. Peter Sandstone above old rock quarry at shooting range (Phillippe & Gehlhausen 22362). *Talinum* was the dominant plant species on the sandstone outcrops.

5) Nachusa Grassland— 80 acre addition (Phillippe 22571, 22572, 22600, 22603). *Talinum rugospermum* was found on three sandstone knobs in the Ogle County part of the grassland. Associates for 22572 are given in Table 2.

6) Oregon—Behind apartment building on Lowden Road just off Route 64. (Phillippe & Gehlhausen 22353). *Talinum* was growing on an outcrop of St. Peter Sandstone. A portion of the population had been mowed and is also threatened by children playing in the area.

7) Pine Rock Nature Preserve—north of Route 64 (Phillippe & Gehlhausen 22329). West southwest of Pine Rock in a sand prairie opening of black oak woods. *Talinum* was most abundant beneath a small power line right-of-way.

8) Pine Rock Nature Preserve—south of Route 64 (Phillippe & Gehlhausen 22324). *Talinum* occurs in a fairly densely vegetated sand prairie along Route 64 and in open woods on south-facing St. Peter Sandstone outcrop.

9) East of Oregon—just south of Burlington Northern Railroad (Phillippe & Gehlhausen 22331). *Talinum* was growing on exposed St. Peter Sandstone facing the Rock River. Associates include: *Besseyia bullii*, *Cerastium arvense*, *Coreopsis palmata*, *Gaylussacia baccata*, *Hedeoma hispida*, *Helianthemum canadense*, *Lechea pulchella*, *Minuartia stricta*, *Scutellaria parvula* var. *parvula*, and *Vulpia octoflora*.

Rock Island Co.: East of Cordova—Cordova-Erie Road. (Gehlhausen et al. 75). *Talinum rugospermum* was found in three areas of sand prairie adjacent to black oak savanna. Associates include: *Achillea millefolium*, *Agrostis hyemalis*, *Ambrosia psilostachya*, *Amorpha canescens*, *Asclepias verticillata*, *Bouteloua hirsuta*, *Carex muhlenbergii*, *Cyperus filiculmis* var. *macilentus*, *Erigeron* sp., *Krigia virginica*, *Lechea* sp., *Lespedeza capitata*, *Linaria canadensis*, *Lithospermum canescens*, *Mollugo verticillata*, *Monarda punctata*, *Panicum linearifolium*, *Panicum oligosanthos*, *Panicum wilcoxianum*, *Plantago purshii*, *Polygala polygama* var. *obtusa*, *Quercus velutina*, *Rhus aromatica*, *Rumex acetosella*, *Schizachyrium scoparium*, *Selaginella rupestris*, *Tephrosia virginica*, *Triodanis perfoliata*, and *Vulpia octoflora*.

Whiteside Co.: 1) Northeast of East Clinton—Ruby Wirth property (Phillippe et al. 22272). *Talinum rugospermum* was scattered fairly commonly in open areas of the sand prairie, but it was not associated with *Hudsonia tomentosa*. Associates include: *Cyperus filiculmis*, *Erigeron strigosus*, *Euphorbia corollata*, *Hedeoma hispida*, *Koeleria macrantha*, *Lepidium virginicum*, *Lespedeza capitata*, *Linaria canadensis*, *Mollugo verticillatus*, *Oenothera rhombipetala*, *Panicum virgatum*, *Selaginella rupestris*, *Toxicodendron radicans*,

2) Northwest of Erie—Paul Heun property and adjacent land (Phillippe 22609, 22642, 22635). Associates are given in Table 2. *Talinum rugospermum* was scattered throughout open grazed sand prairie and adjacent undisturbed sand prairie to the east.

3) Thomson-Fulton Nature Preserve—The *Talinum* population was about 500 feet north of the south end of the preserve and 50 to 100 feet west of the preserve's east border (Phillippe 22637). *Selaginella rupestris* was consistently associated with *Talinum*.

Winnebago Co.: Northwest of Shirland—near Yale Bridge Road (Robertson et al. 5061). A total of 56 plants of *T. rugospermum* were observed in two areas in a L-shaped sand prairie opening in a black oak woods. The first area was about 5 m² and the second was about 300 m². The site is north of Yale Bridge Road, southeast of the power line, and about 0.2 mile east of the bridge. Associates include: *Ambrosia psilostachya*, *Asclepias lanuginosa*, *Carex*

muhlenbergii, *Coreopsis palmata*, *Koeleria macrantha*, *Lespedeza capitata*, *Liatris aspera*, *Linaria canadensis*, *Panicum pseudo-pubescens*, *Quercus velutina*, *Rumex acetosella*, and *Tradescantia ohiensis*.

b. Populations known or assumed extirpated

Cook Co.: *Talinum rugospermum* is reported from Cook Co. by Swink & Wilhelm (1979), based on a sight record by Richard Wason on August 29, 1962. According to a map kindly supplied by Floyd Swink and Gerould Wilhelm, this sighting was made ¼ mile east of Torrence Avenue and 50 yards south of Michigan City Road; this area is now in the Green Lake Savanna Forest Preserve. Searches were made of this area in August 1992 and June 1993, and no plants of *T. rugospermum* were found. This area has been fairly thoroughly botanized in the past three years as part of the "Great *Thismia americana* Hunt," and it can be assumed that *T. rugospermum* has been extirpated from the area. For the 1993 *Thismia* hunt, we asked Dr. Gerould Wilhelm of the Morton Arboretum to especially look for *T. rugospermum*, and he and nine other people searched extensively in Green Lake Savanna without finding the species.

Menard Co.: The only record of *T. rugospermum* from this county is a specimen collected by Hall in 1861, and it is unlikely that the species is extant in the county. This is the first record of this species in Illinois, as published by Vasey (1861) under the name *T. teretifolium*.

Mercer Co.: Several collections of *T. rugospermum* were made by Robert Evers between 1955 and 1974 in a sand prairie along a roadside southeast of Keithsburg. One collection has "T13N, R5W, section 36" on the label. During 1993, the two roads along this section, on the east and south, were searched, and no extant sand prairie was found; the land is now agricultural.

Winnebago Co.: one mile west of Shirland, near Sugar River (Fell f45517). This area was searched, and the likely site of the population is a sand blowout that is now a rifle range. The canopy of the surrounding black oak forest is now fairly dense. We discussed our searches for *Talinum* with Pete Ramsby, who lives just southeast of the rifle range. Mr. Ramsby knew E. W. Fell, had botanized with him, and has a copy of Fell's flora of the county (1955) annotated by Fell. The entry in the Flora under *Talinum* "on the brim of the sand pit near Winslow bridge west of Shirland" had been circled by Fell; however, Mr. Ramsby has no recollection of ever seeing this population.

c. Historical known populations where current status is not known

Jo Daviess Co.: South of Blanding (Evers 35750). No searches were made in this area during 1993. Randy Nyboer, Illinois Department of Conservation, indicated that he does not know of any extant sand prairies in the vicinity of Blanding.

La Salle Co.: Southwest of Naplate (Evers 113873, 114549, 114788, 114843). This population is on property owned by U.S. Silica and was seen by Bowles and Wilson in 1992. Permission was requested through Lloyd Dromm of U.S. Silica (815 434-0188) to visit the site, but permission was denied as there is construction in the area. Habitat at this site is probably similar to that found at the South Ottawa populations. According to Marlin Bowles (personal communication), *T. rugospermum* occurs in thin sand over sandstone near the river bank.

Lee Co.: West of Amboy (Long 795, 1129, s.n.). Areas were searched to the west of Amboy in 1993, but no plants of *T. rugospermum* were found. However, extant populations probably exist since the last herbarium specimen was collected in 1989 by James Long, probably on private property. An attempt has been made to contact Mr. Long to seek his assistance in locating these populations.

d. Locations not visited believed likely to support additional populations

Talinum rugospermum is fairly widespread in sand prairies in Illinois, and it is likely that other populations occur. Some possible areas include the following. **Carroll and Jo Daviess Cos.:** There are probably numerous populations and subpopulations at the Savanna Army Depot. **Henderson Co.:** John Schwegman (personal communication) reported seeing the species in an old cemetery in Big River State Forest north of the population reported above. **Iroquois Co.:** suitable habitat exists in the large Hooper Branch Nature Preserve and Iroquois Co. Conservation Area, and additional populations could occur. **Kankakee Co.:** There is considerable sand in this county, and it would not be surprising to discover additional populations of *T. rugospermum*. **La Salle Co.:** While extensive searches were made of other sandstone outcrops (Lover's Leap, Eagle Cliff) in Starved Rock State Park during 1993 without locating *T. rugospermum*, the park is large, and extensive searching could reveal additional populations. All property along the north side of Route 71 (between the road and the Illinois River) between East Ottawa and Covell Creek is privately owned and not very accessible; suitable habitat for *T. rugospermum* could exist. **Ogle Co.:** There is considerable likely habitat for this species in and around Castle Rock State Park. **Whiteside Co.:** Potential habitat was observed on both sides of the railroad tracks on the north side of the property owned by Ruby Wirth, described above.

e. Locations reported in error for *Talinum rugospermum*

Mohlenbrock & Ladd (1978) and Cochrane (1993) show this species as occurring in Sangamon County; however, we have seen no specimens from this county, and these reports are probably the result of mistaking Sangamon County for the adjacent Menard County when preparing the maps.

4. General Environment and Habitat Description

The only known populations of *Talinum rugospermum* in Illinois occur associated with sand (Map 2). Most populations occur in extensive deposits of windblown sand. In these areas, however, populations never cover large expanses of sand prairie. Rather, populations of *T. rugospermum* are localized along the edges of blowouts or in places where the sand has been eroded or disturbed previously but is now beginning to revegetate; this species is usually not found in areas undergoing active erosion.

A few populations of *Talinum rugospermum* occur in thin sand formed from exposed St. Peter sandstone bedrock, such as at Castle Rock, Pine Rock, Nachusa Grassland, and Starved Rock. Sometimes the plants seemingly occur directly on the sandstone itself, either on flat ledges or on vertical rock faces. At the sites in La Salle Co. to the east and west of the Cargill grain elevator, the landscape is flat, but this area is actually the top of a low sandstone cliff along the Illinois River with extensive exposures of flat slabs of sandstone.

In some cases, *Talinum rugospermum* occurs in sandy soil along the edges or in openings of black oak savannas. The following populations are associated with savannas. Iroquois Co.: Hooper Branch Savanna, Jo Daviess Co.: north part of

Savanna Army Depot, Kankakee Co.: sw of Leesville and se of St. Anne Woods, Lee Co.: Reuter and Scout roads, Mason Co.: Quiver Prairies and Sand Ridge State Forest, Rock Island Co.: e of Cordova, Whiteside Co.: ne of East Clinton, and Winnebago Co.: nw of Shirland.

Talinum rugospermum can occur where sand has been disturbed or exposed, such as when roads were constructed through sand dunes or sand savannas. The species also can be found along old fire breaks (Green River Conservation Area) or old road beds (north of Leesville West Natural Area). In Indiana, the species primarily occurs today in areas with recent disturbance (Noel Pavloic, personal communication).

The soil is usually well exposed with fairly sparse vegetation where *Talinum* occurs; the species does not seem to compete well with grasses. In a study of two similar species in the southeastern United States, *T. calcaricum* and *T. Mengesii*, Ware (1991) found that growth was much decreased when the plants grew in competition with *Poa pratensis*. Ware concluded that the "results are consistent with the notion that plants of the shallow soil of rock outcrops are very poor competitors (especially for light), but can survive in their habitats because of greater drought resistance than potential competitors."

Many succulent plants, such as *Opuntia humifusa*, are damaged by prairie fires. We have only limited observations on the effect of fire on *Talinum rugospermum*. The sand prairie where *T. rugospermum* occurs at Big River State Forest was accidentally burned in the spring of 1993. It appears to have been sporadic, leaving many unburned patches of sparse vegetation. Most plants of *T. rugospermum* occur in areas that were not burned, but some plants were seen in the burned areas, even adjacent to damaged *Opuntia* plants. At H. A. Gleason Nature Preserve, much of the northern part had been burned this spring, severely impacting *Opuntia humifusa*. In this burned part, four flowering and no non-flowering plants of *T. rugospermum* were seen in 1993; in previous years only a few plants have been observed in this area by J. Schwegman and K. Robertson. The area had not been burned in the south of the preserve where 20 plants of *Talinum* were found this year.

Quantitative samples were made at three populations of *Talinum rugospermum*. Two of these were in La Salle Co. and west of East Ottawa—one to the east of the Cargill grain elevator (Robertson 5105) and the other to the west (Robertson 5107); the results are shown in Table 3. The "East" population is mowed two or three times a year, according to a person who was mowing during one of our visits. The mower is set fairly high, and it passes over many *Talinum* plants or sometimes cuts off the upper part and/or some inflorescences. The "West" site was very similar except that it had not been mowed. The flowering plants at the "East" site produced significantly more branches, pedicels, and fruits per plant than plants at the "West" site, presumably in response to stimulation caused by mowing injuries.

The third population for quantitative sampling was at Hooper Branch Savanna Nature Preserve in Iroquois Co. (Phillippe & Gehlhausen 22651)); the results are shown in Table 4. Ten percent of the total area was sampled for each of four subpopulations. A total of 125 flowering and 227 non-flowering plants were observed in the samples, and since 10% of the area was sampled, by extrapolation it is estimated that there are 1250 flowering and 2270 non-flowering plants in the whole population. With an average of 4.6 fruits per plant

and 20.16 seeds per fruit, it is estimated that at least 115,920 seeds were produced in the population this year.

In his pioneering study of the inland sand deposits of Illinois, Gleason (1910) noted *Talinum rugospermum* occurred as an interstitial species in openings of the *Panicum pseudopubescens* association (*Dichanthelium villosissimum* var. *pseudopubescens*). *Talinum* was less common in areas reverting from the *Panicum pseudopubescens* association to the original bunch-grass association; the pioneer invader is *Selaginella rupestris*. *Talinum* also occurred in the black oak association as a "species more typical of the prairie associations."

5. Population Biology

A. General Summary of Population Biology

Talinum rugospermum is a succulent herbaceous perennial. The leaves and stems are very fleshy and cylindrical. Back in the days before electric forced air plant dryers, H. N. Patterson noted on the label of a herbarium specimen collected in 1871 that plants of *Talinum rugospermum* (as *T. teretifolium*) take six months to dry!

Most populations contain both flowering and non-flowering plants (Tables 3 and 4). The latter are much smaller than flowering plants and are presumed to be seedlings. During field work in 1993, we observed that some of these small plants produced inflorescences late in the growing season.

The common name "flower-of-an-hour" refers to the short period of flowering. The flowers generally open about 3:30 or 4:00 p.m. in the afternoon (Central Daylight Savings Time) and remain open until about 6:00 to 7:00 p.m. Each flower only opens one time and is rose in color, matching Colour 64-C (red-purple group) of the Royal Horticultural Society Colour Chart (1966). Relatively few flowers on any given plant are open at one time. Immediately upon opening, the flowers are visited by small insects. A collection was made of insect visitors at Castle Rock State Park (at site of Phillippe & Gehlhausen 22362), and two species of Diptera were identified by Dr. Donald Webb of the Illinois Natural History Survey — Diptera: Empididae, *Empis clausa* Coquillett; Diptera: Syrphidae, *Mesograpta marginata* (Say). Carter & Murdy (1986) reported a variety of insect visitors to flowers of *T. mensesii* and *T. teretifolium*, including 10 species of Hymenoptera, 3 species of Diptera, and 3 species of Lepidoptera.

The flowering period is quite long, beginning in early June and continuing until late August. Capsular fruits are also produced for an extended period. Numerous seeds are produced in each fruit (an average of 20.16 from Table 4), and the capsules split open releasing the seeds, which are somewhat flattened and 1.0–1.2 mm in diameter. The seed coat has a whitish covering over dark reddish-brown or black; as the specific epithet "*rugospermum*" implies, the seeds are distinctly wrinkled. There are no obvious adaptations for dispersal.

The ecology and reproductive biology of *Talinum rugospermum* has been little studied, especially when compared to other species of *Talinum* in the eastern United States; not even the chromosome number is known. Ware (1972) reported that the thick fleshy stems of *T. calcaricum* and *T. mensesii* become dormant in the fall and require a cold treatment before breaking dormancy in the spring. Also, some stems in *T. calcaricum* produce special vegetative propagules late in the growing season. Evidently, the stems of *T. rugospermum* go dormant in fall, serving to perennate the plants, but is not known if *T. rugospermum* produces vegetative propagules.

Green plants usually fit into one of three categories of photosynthetic carbon reduction pathways—C₃, C₄, and CAM (Crassulacean acid metabolism). The species of *Talinum* that have been investigated thus far are of interest because they show characteristics of both C₃ and CAM pathways (Martin & Zee 1983, Harris & Martin 1991a, 1991b). The CAM pathway is often associated with succulent species and is an adaptation to hot, dry conditions—during the day, the stomates are closed, the light reactions of photosynthesis occur, and fixed carbon is reduced to carbohydrates. At night the stomates are open to allow gas exchange, the loss of water vapor, and carbon fixation. A recent study (Harris et al. 1993) has also established a correlation between ploidy level and malic acid accumulation during the nocturnal phase of Crassulacean acid metabolism in five species of *Talinum*. Unfortunately, *T. rugospermum* has not been investigated in this regard.

B. Demography in Illinois

Data on the sizes of extant populations observed in 1993 is given in Table 1.

6. Current Land Ownership Summary

Talinum rugospermum occurs in the following publicly owned or protected areas.

- a. Illinois Nature Preserves: Ayres Sand Prairie (Carroll Co., owned by IDOC), Henry Allan Gleason (Mason Co., IDOC), Hooper Branch Savanna (Iroquois Co., IDOC), Pine Rock (Ogle Co., IDOC), Quiver Prairies (Mason Co., IDOC), Thomson-Fulton (Whiteside Co., IDOC).
- b. State Parks: Castle Rock (Ogle Co., IDOC), Starved Rock (La Salle Co., IDOC)
- c. State Forests: Big River (Henderson Co., IDOC), Sand Ridge (Mason Co., IDOC).
- d. State Conservation Areas: Iroquois Co. (IDOC), Green River (Lee Co., IDOC).
- e. Federal: Savanna Army Depot (Carroll and Jo Daviess cos., U.S. Army).
- f. Conservation Group: Nachusa Grassland (Lee and Ogle cos., The Nature Conservancy).

7. Evidence of Threats to Survival — Summary

At least 41 evidently sustainable populations of *Talinum rugospermum* occur in Illinois (Table 1, Map 2). As noted in the previous section, many of these are on protected land. However, many are on private land or along county highways and thus have the potential for eradication due to development, road construction, or other habitat modifications. For instance, the large population in La Salle County southwest of East Ottawa and just east of Cargill Grain Elevator (Robertson 5043, 5105) is for sale. This narrow strip of land, between the Illinois River and Route 72, could be used for commercial development, which would likely destroy the population of *T. rugospermum*.

While the land in the areas listed in Section 6 above are not subject to commercial development, the populations of *T. rugospermum* in some of them are still subject to threat. There is extensive grazing within Savanna Army Depot; we have no data to assess whether grazing is actually detrimental to *Talinum*. One area northwest of Erie, located on private land, is heavily grazed by cattle. We noticed numerous instances at other locations where the top part of plants had been eaten, but this evidently does not kill the plants.

Mining for sand is also a concern. The property owned by Ruby Wirth in Whiteside Co. had been mined in the 1960s for sand to fill sandbags during a flood.

II. ASSESSMENT AND RECOMMENDATIONS

8. Recommended Status

We recommend that *Talinum rugospermum* be listed as threatened in Illinois. While 41 populations of this species are known in Illinois, most of these populations are small (Table 1), and they are highly localized, not covering extensive portions of any given area. Of the 41 populations, several occur on private, non-protected land and along roadsides, including large populations in Kankakee, La Salle, Rock Island, and Whiteside counties. The population in Winnebago Co. is evidently on private property just outside of the boundaries of an addition to Colored Sands Bluff Nature Preserve, which is owned by the Winnebago Co. Forest Preserve District. Many of the populations on private land and along roadsides could be readily destroyed in the next few years, which would be detrimental to the species in the state.

Considering the species in its overall distribution in the United States, Illinois and Wisconsin seem to have the highest numbers of populations and the largest populations. When making decisions in Illinois about listing species as threatened or endangered, the overall abundance or scarcity of species needs to be taken into consideration. *Talinum rugospermum* is a good example of this.

We also recommend that the Illinois Department of Conservation dedicate the area where *T. rugospermum* occurs within Great River State Forest as a Nature Preserve to better protect the species at that location. Two state endangered or threatened species also occur in this area—*Penstemon grandiflorus* and *Stylisma pickeringii* var. *pattersonii*.

9. Critical Habitat

The attached maps (7.5' topographic quadrangles) in Appendix I, showing the localities of extant populations, depict the critical habitat of *Talinum rugospermum* in Illinois.

10. Interested Parties

Illinois Department of Conservation
Illinois Department of Transportation
Illinois Nature Preserves Commission
Illinois Endangered Species Protection Board
Illinois Natural History Survey
Illinois Native Plant Society
Natural Land Institute
The Nature Conservancy
Winnebago County Forest Preserve District

III. 11. SOURCES OF INFORMATION

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b. Other Publications

All cited in text.

B. Museum collections

All herbarium specimens of historical collections examined in herbaria as well as specimens collected as part of field work conducted by the authors during 1993 are listed in Appendix 1. The following abbreviations are used for herbaria:

DEK	Northern Illinois University, DeKalb
EIU	Eastern Illinois University, Charleston
F	Field Museum of Natural History, Chicago
ILL	University of Illinois at Urbana/Champaign
ILLS	Illinois Natural History Survey, Champaign
KNOX	Knox College, Galesburg, Illinois
MO	Missouri Botanical Garden, Saint Louis, Missouri
MOR	Morton Arboretum, Lisle
SIU	Southern Illinois University, Carbondale.

C. Field Work

Extensive field work was carried out for the project by Loy R. Phillippe, Kenneth R. Robertson, and Sophia M. Gehlhausen of the Illinois Natural History Survey, assisted by Scott C. McKay, Randy Nýboer, Victoria Nuzzo, Howard Oller, and Amanda S. Robertson, in Carroll, Cook, Henderson, Iroquois, Jo Daviess, Kankakee, La Salle, Lee, Mason, Menard, Mercer, Morgan, Ogle, Rock Island, Whiteside, and Winnebago counties. A total of 28 person-days were spent in the field.

D. Other Knowledgeable Individuals

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Table 1. Results of searches for *Talinum rugospermum* in Illinois.

Table 2. List of species associated with *Talinum rugospermum* in sand prairie sites.

Table 3. Results of sampling populations of *Talinum rugospermum* in La Salle Co., Illinois.

Table 4. Results of sampling populations of *Talinum rugospermum* in Kankakee Co., Illinois.

Map 1. Reported distribution of *Talinum rugospermum* in Illinois.

Map 2. Locations of extant populations of *Talinum rugospermum* in Illinois.

Map 3. Distribution of *Talinum rugospermum* in the United States (from Cochrane 1993).

Appendix 1. Herbarium records of *Talinum rugospermum* seen during this study.

Appendix 2. Location maps of extant populations of *Talinum rugospermum* in Illinois.

Table 1. Results of searches for *Talinum rugospermum* in Illinois.

County	General Locality (Exact Locality in Appendix 1)	7.5' Quad with Township, Range, Section	1992 - 1993 Collections with Collector and Number	Historic Herbarium Collections from General Vicinity or Other Sources	Estimated Population Size in 1993
Carroll	Ayres Sand Prairie Nature Preserve	Wacker, T24N R3E, SW ¼ of sect. 24	Gehlhausen, Phillippe & Robertson 103	Bowles 1295	254 flowering, 142 non-flowering
	French Woods Hill Prairie	Thomson, T23N R4E, SW ¼ of SE ¼ of sect. 17	Phillippe, Gehlhausen, Robertson & Nyboer 22318	Randy Nyboer and Michael Jones, personal communications	51 flowering, 186 non-flowering
	Savanna Army Depot, cattle exclusion zone	Green Island, T25N R2E, NE ¼ of Sec. 3	Phillippe, Gehlhausen, Robertson & Nyboer 22284	Marlin Bowles and Michael Jones, personal communication; Gleason (1911)	12 flowering, 226 non-flowering
	Savanna Army Depot	Green Island, T25N R2E, NW ¼ of sect. 2	Gehlhausen, Phillippe, Robertson & Nyboer 89	Marlin Bowles and Michael Jones, personal communication; Gleason (1911)	44 flowering, 85 non-flowering
Cook	Probably Green Lake Forest Preserve	Calumet City, T37N R15E sect. 18	area searched, no plants found, population probably shaded out; other sand savanna plants still in area	Swink & Wilhelm (1979) & personal communication	not located
Henderson	Sand prairie northeast of Oquawka at Big River State Forest, ½ mile east of county road 2450N on 1350E	Oquawka, T12N R5W, NW ¼ of sect. 36 & NE ¼ of sect. 35	Robertson 4993; Robertson & Robertson 5024	Patterson s.n.; Evers 33403, 114662; Robertson & Bouseman 4323; Koelling 5445	147 plants, mostly flowering
Iroquois	Iroquois County Conservation Area	Donovan, T29N R11W, N-central portion of NE ¼ of sect. 24	Gehlhausen & Phillippe 57	Bacone & Madany s.n.	33 flowering, 64 non-flowering
	Hooper Branch Savanna Nature Preserve, near road on south side of preserve	Donovan, T29N R11W, SW ¼ of SW ¼ of sect.13	Gehlhausen & Phillippe 46		121 flowering, 126 non-flowering
	Hooper Branch Savanna Nature Preserve, opening in savanna	Leesville, T29N R11W, S ½ of NW ¼ of NW ¼ of sect.13	Phillippe & Gehlhausen 22651	Bill Glass, personal communication; Natural Heritage Database	1250 flowering, 2270 non- flowering
	Hooper Branch Savanna Nature Preserve, opening in savanna	Leesville, T29N R11W, N ½ of SW ¼ of sect.13	Gehlhausen & Phillippe 52	Natural Heritage Database	180 flowering, 144 non-flowering

Jo Daviess

Savanna Army Depot, restricted area
 Green Island, T26N R1E, NE ¼ of Sec. 25
 10 flowering, 0 non-flowering
 same population seen by Robertson in 1986

Savanna Army Depot, restricted area, near Bunker F1306
 Hanover, T26N R1E, SE ¼ of sect. 11
 258 flowering, 90 non-flowering
 perhaps Gates 2541; also see Gleason (1911)

South of Blanding
 —
 not searched in 1993
 Evers 35750

Kankakee

Guiding Star Savanna Natural Area, south of Cemetery
 Robertson & McKay 4989; Phillippe & Gehlhausen 21940
 stopped counting at 1,000, mostly flowering

Along north side of road north of Guiding Star Cemetery
 St. Anne, T30N R11W, SW ¼ of SE ¼ of sect. 20
 128 counted, mostly flowering, many more present

½ mile west of Guiding Star Memorial Cemetery
 St. Anne, T30N R11W, middle of S ½ of SE ¼ of sect. 19
 500 plants counted, probably more, mostly flowering

north of Leesville
 Leesville, T29N R11W, SE ¼ of SW ¼ of sect. 12
 more than 1,000 plants, mostly flowering

Savanna West Natural Area, ca. 2 miles southwest of Leesville
 ½ mile southwest of Leesville
 Wilhelm & Byrne 3633
 89 plants, mostly flowering

1 ¼ mile southeast of St. Anne Woods
 Leesville, T29N R11W, SW ¼ of SE ¼ of sect. 3 and NW ¼ of NE ¼ of sect. 10
 484 counted, mostly flowering

La Salle

Starved Rock State Park, on Starved Rock
 Robertson 5063
 7 flowering, 1 non-flowering
 Ries s.n.; McDonald s.n.; Gates & Sinclair 3197; Moffatt 99

Starved Rock State Park, bluff trail to north of St. Louis Canyon
 Robertson 5069
 11 flowering, 2 non-flowering
 Fuller 3060

½ mile west of South Ottawa along route 71, between road and river
 Robertson 5043, 5105
 100s of plants, 150 counted in 10' × 100' area and 12 flowering in 1 f²

1.0 mile west of South Ottawa along route 71, between road and river
 Robertson 5058, 5107
 100s of plants; 100 counted in 5' × 20' area
 Tyson personal communication; Natural Heritage Database

LaSalle (continued)	Southwest of Naplate	Ottawa, T33N R3E, n ½ of sect. 21	owned by U.S. Silica, permission requested through Lloyd Dromm (815 434-0188) to visit area, but request denied	Evers 113873, 114549, 114788, 114843	hundreds of plants in 1992 according to Bowles & Wilson
Lee	Nachusa Grassland, northwest of Franklin Grove	Daysville, T22N R10E, sect. 21	Robertson 5093, 5100	probably Fuller 11898; Fuller & Keithley 11898, s.n.; Keithley 278; Natural Heritage Database	found on 6 of 8 knobs visited, some knobs with 500 + plants; 125 flowering plants counted on ¼ of one knob
	West of Amboy	uncertain	none yet, attempts have been made to contact James Long	Long 795, 1129, s.n.	not located in 1993, but populations probably extant
	Reuter Road, ca. 600' south of Brewster Road, south of Walton	Walton, T19 R9E, N ½ of sect. 3	Robertson 5074	Natural Heritage Database and Michael Jones, personal communication	16 flowering, 33 non-flowering; population probably decreasing in size for conversations with Hazel Reuter and Bob Szafoni
	Scout Road, ca. 1000' south of Brewster Road, south of Walton Green River Conservation Area	Walton, T19N R9E, NE ¼ of sect. 2	Robertson 5088	Michael Jones, personal communication	27 flowering, 2 non- flowering
	1 mile southwest of Grand Detour	Walton, T19N R9E, SW ¼ of sect. 8	Robertson 5092	Natural Heritage Database and Michael Jones, personal communication	122 flowering, 32 non-flowering
Mason	Quiver Prairies, Sand Ridge State Forest	—	Phillippe & Gehlhausen observation, no collection	Natural Heritage Database perhaps Koelling 4967	too few plants to collect in 1993 118 plants, mostly flowering
	Henry Allan Gleason Nature Preserve, Sand Ridge State Forest	Duck Island, T23N R7W, NW ¼ of SE ¼ of sect. 28	Gehlhausen & Phillippe 36	perhaps Thieret 3596, s.n.	24 plants, mostly flowering
	Sand Ridge State Forest, north of headquarters	Duck Island, T22N R7W, NW ¼ of SW ¼ of SE ¼ of sect. 6	Gehlhausen & Phillippe 33	perhaps Maier s.n., years 1973, 1974, 1975	14 plants
Menard	Athens	Manito, T22N R7W, SW ¼ of NE ¼ of sect. 3	Schwegman personal communication	Hall s.n., year 1861	old collection, area not searched
Mercer	Southeast of Keithsburg	Keithsburg, T14N, R5W, sect. 36	—	Evers 48000, 80832, 91766, 114674 (last collected in 1975)	area searched in 1993 and all land now agricultural

Ogle	On Castle Rock in Castle Rock State Park, south of Oregon	Grand Detour, T23N R10E, SE ¼ of NE ¼ of sect. 19	Phillippe & Gehlhausen 22347	Ahles 4563; Chase 18440; Fell f45418; Fuller 3211, 9257; Hill 108-1905; Hills 3211, 3350-0; Moffatt 452; Waite s.n. year 1885; Winterringer 7296	97 flowering, 57 non-flowering
	Sandstone bluff just north of Castle Rock, south of Oregon	Grand Detour, T23N R10E, SW ¼ of NW ¼ of sect. 20	Phillippe & Gehlhausen 22348	perhaps Fuller 10895; Robertson, personal communication	133 flowering, 229 non-flowering
	Castle Rock State Park	Grand Detour, T23N R10E, NW ¼ of SW ¼ of sect. 17	Phillippe & Gehlhausen 22354	Taft, personal communication	11 flowering, 9 non-flowering
	Sandstone bluff behind shooting range in Castle Rock State Park	Daysville, T23N R10E, NW ¼ of NE ¼ of SE ¼ of sect. 16	Phillippe & Gehlhausen 22362	Taft, personal communication	counted 420 flowering, 448 non-flowering, but well over 1,000 present
	Nachusa Grassland, north 80 acre addition	Daysville, T22N R10E, SE ¼ of SW ¼ of SE ¼ of sect. 16	Phillippe 22571	Victoria Nuzzo and Hazel Reuter, personal communications	107 flowering, 64 non-flowering
	Nachusa Grassland, north 80 acre addition	Daysville, T22N R10E, N ½ of SW ¼ of SE ¼ of SW ¼ of sect. 16	Phillippe 22572		189 flowering, 207 non-flowering
	Nachusa Grassland, north 80 acre addition	Daysville, T22N R10E, SE ¼ of SW ¼ of SW ¼ of sect. 16	Phillippe 22600		73 flowering, 34 non-flowering
	Nachusa Grassland, north 80 acre addition	Daysville, T22N R10E, SE ¼ of SE ¼ of SW ¼ of sect. 16	Phillippe 22603		31 flowering, 9 non-flowering
	Oregon, sandstone outcrop next to Lowden Road, just off State Route 64	Oregon, T23N R10E, NW ¼ of S ½ of sect. 2	Phillippe & Gehlhausen 22353	perhaps Chase 18440	84 flowering, 52 non-flowering
	Pine Rock Nature Preserve, north of Route 64	Oregon, T23N R11E, S edge of sect. 5	Phillippe & Gehlhausen 22324	Wade & Wade C-1618; Natural Heritage Database	75 flowering, 40 non-flowering
	Pine Rock Nature Preserve, south of State Route 64,	Oregon, T23N R11E, center of NW ¼ of sect. 8	Phillippe & Gehlhausen 22329		111 flowering, 54 non-flowering

Ogle (continued)	just east of Oregon, off of Burlington Northern Railroad, facing Rock River	Oregon, T23N R10E, NE ¼ of sect. 10	Phillippe & Gehlhausen 22331	345 flowering, 112 non-flowering
	west of Castle Rock	—	—	searched but could not find in 1993
Rock Island	2 ½ miles east of Cordova	Cordova, T20N R2E, SE ¼ of sect. 33	Gehlhausen, Phillippe, Robertson & Nyboer 75	141 flowering, 178 non-flowering
Whiteside	1 ½ mile northeast of East Clinton, owned by Ruby Wirth	Clinton, T22N R3E, SE ¼ of sect. 34	Phillippe, Gehlhausen, Robertson & Nyboer 22272	215 flowering, 549 non-flowering
	5 miles northwest of Erie	Erie Northwest, T20N R3E, NE ¼ of sect. 29	Phillippe 22609	39 flowering, 35 non-flowering
	5 miles northwest of Erie	Erie Northwest, T20N R3E, SW ¼ of NW ¼ of SE ¼ of sect. 20	Phillippe 22635	72 flowering, 59 non-flowering
	5 miles northwest of Erie	Erie Northwest, T20N R3E, NW ¼ of sect. 28	Phillippe 22642	18 flowering, 12 non-flowering
	Thomson-Fulton Nature Preserve	Thomson, T22N R3E, SE ¼ of SE ¼ of sect. 2	Phillippe 22637	24 flowering, 4 non- flowering
Winnebago	Northwest of Shirland, northeast of Yale Bridge Road crossing of Sugar River	Shirland, T29N R11E, NE ¼ of NE ¼ of sect. 32	Robertson, Nuzzo & Oller 5061	21 flowering plants in 15' × 15' area + 35 flowering plants in 30' × 100' area
	West of Shirland, near Sugar River	probably Shirland, T28N R11E, NE ¼ of sect. 9	—	area searched in 1993, probably what is now occupied by a rifle range

Table 2. List of species associated with *Talinum rugospermum* Holz. in sand prairie sites.

Iroquois Co.: 1) Phillippe & Gehlhausen 22651; **Mason Co.:** 2) Gehlhausen & Phillippe 36; **Ogle Co.:** 3) Phillippe 22572; **Whiteside Co.:** 4) Phillippe 22609; **Henderson Co.:** 5) Robertson & Robertson 5024; **LaSalle Co.:** 6) Robertson 5043; **Iroquois Co.:** 7) Gehlhausen & Phillippe 46.

Associates	1	2	3	4	5	6	7
<i>Achillea millefolium</i> L.	—	—	✓	✓	—	—	—
<i>Agrostis hyemalis</i> (Walt.) BSP.	—	—	✓	—	—	—	—
<i>Ambrosia artemisiifolia</i> L.	✓	—	✓	—	—	—	—
<i>Ambrosia coronopifolia</i> Torrey & Gray	—	—	—	✓	✓	—	—
<i>Ambrosia</i> sp.	—	✓	—	—	—	—	—
<i>Amorpha canescens</i> Pursh	—	—	—	✓	—	—	—
<i>Antennaria plantaginifolia</i> (L.) Richards	—	—	—	✓	✓	—	—
<i>Arenaria serpyllifolia</i> L.	—	—	—	—	—	✓	—
<i>Aristida tuberculosa</i> Nutt.	✓	✓	—	—	—	—	—
<i>Aronia melanocarpa</i> (Michx.) Ell.	—	—	✓	—	—	✓	—
<i>Artemisia campestris</i> L.	—	—	—	—	—	✓	—
<i>Asclepias amplexicaulis</i> J.E. Smith	✓	—	—	—	—	—	—
<i>Asclepias verticillata</i> L.	✓	—	✓	✓	—	—	—
<i>Aureolaria pedicularia</i> L. var. <i>ambigens</i> (Fern.) Farw.	✓	—	—	—	—	—	—
<i>Baptisia leucophaea</i> Nutt. var. <i>leucophaea</i>	—	—	✓	—	—	—	—
<i>Bouteloua hirsuta</i> Lagasca.	—	✓	—	✓	—	—	—
<i>Calamovilfa longifolia</i> (Hook.) Scribn.	—	—	—	✓	—	—	—
<i>Carex muhlenbergii</i> Willd.	✓	✓	✓	—	✓	—	✓
<i>Carex pensylvanica</i> Lam.	✓	—	✓	—	—	—	✓
<i>Carex umbellata</i> Schk.	—	—	✓	✓	—	—	—
<i>Cassia fasciculata</i> Michx.	—	✓	—	—	—	—	—
<i>Cassia nictitans</i> L.	✓	—	—	—	—	—	—
<i>Chamaesyce geyeri</i> (Englem. & Gray) Small	—	—	—	✓	—	—	—
<i>Comandra umbellata</i> (L.) Nutt.	—	—	✓	—	—	—	—
<i>Commelina erecta</i> L.	✓	—	—	—	—	—	✓
<i>Conyza canadensis</i> (L.) Cronquist	—	—	✓	✓	—	—	—
<i>Coreosis lanceolata</i> L.	—	—	—	—	—	✓	—
<i>Coreopsis palmata</i> Nutt.	—	—	✓	—	—	—	—
<i>Croton glandulosus</i> L. var. <i>septentrionalis</i> Muell.-Arg.	—	—	—	✓	—	—	—
<i>Cyperus filiculmis</i> Vahl var. <i>filiculmis</i>	✓	—	—	✓	✓	—	✓
<i>Cyperus filiculmis</i> Vahl var. <i>macilentus</i> Fern.	✓	—	✓	—	—	—	✓
<i>Danthonia spicata</i> (L.) Roem. & Schultes	—	—	✓	—	—	—	—
<i>Equisetum hyemale</i> L. var. <i>affine</i> (Engelm.) A.A. Eaton	—	—	—	✓	—	—	—
<i>Eragrostis spectabilis</i> (Pursh) Steud.	✓	—	—	—	—	—	—
<i>Erigeron annuus</i> (L.) Pers.	—	—	✓	—	—	—	—
<i>Erigeron strigosus</i> Muhl.	—	✓	✓	✓	✓	—	✓
<i>Euphorbia corollata</i> L.	✓	—	—	—	—	—	✓
<i>Froelichia floridana</i> (Nutt.) Moq.	—	—	—	—	✓	—	—
<i>Geranium carolinianum</i> L.	—	—	—	—	—	✓	—
<i>Gnaphalium</i> sp.	—	✓	—	—	—	—	—
<i>Hedeoma hispida</i> Pursh	—	—	✓	—	—	—	—
<i>Hedyotis longifolia</i> (Gaertn.) Hook. var. <i>longifolia</i>	—	—	✓	—	—	—	—
<i>Helianthemum bicknellii</i> Fern.	—	—	✓	—	—	—	—
<i>Helianthemum canadense</i> (L.) Michx.	✓	—	—	—	—	—	—

Associates

	1	2	3	4	5	6	7
<i>Helianthus occidentalis</i> Riddell	—	✓	—	—	—	—	—
<i>Heterotheca camporum</i> (Greene) Shinnars	—	—	—	✓	—	—	—
<i>Hieracium gronovii</i> L.	✓	✓	—	—	—	—	—
<i>Hypericum gentianoides</i> (L.) BSP.	—	—	✓	—	—	—	—
<i>Koeleria macrantha</i> (Ledeb.) Spreng.	✓	—	—	✓	✓	—	✓
<i>Krigia virginica</i> (L.) Willd.	✓	✓	✓	—	✓	—	✓
<i>Lechea tenuifolia</i> Michx.	—	—	✓	—	—	—	✓
<i>Lechea villosa</i> Ell.	✓	—	—	—	—	—	—
<i>Lepidium virginicum</i> L.	✓	—	—	✓	✓	✓	✓
<i>Leptoloma cognatum</i> (Schult.) Chase	✓	—	✓	—	—	—	—
<i>Lespedeza capitata</i> Michx.	✓	✓	—	✓	✓	—	—
<i>Liatris aspera</i> Michx.	—	—	✓	—	—	—	—
<i>Liatris</i> sp.	—	✓	—	—	—	—	✓
<i>Linaria canadensis</i> (L.) Dum.-Cours.	✓	✓	✓	—	—	—	✓
<i>Lithospermum caroliniense</i> (J.F. Gmel.) MacM.	✓	✓	—	✓	✓	—	—
<i>Lupinus perennis</i> L.	—	—	✓	—	—	—	—
<i>Medicago lupulina</i> L.	—	—	—	—	—	✓	—
<i>Melilotus officinalis</i> (L.) Pallas	—	—	—	—	—	✓	—
<i>Mollugo verticillatus</i> L.	✓	—	✓	✓	—	—	—
<i>Monarda punctata</i> L.	✓	—	—	✓	—	—	✓
<i>Oenothera rhombipetala</i> Nutt.	✓	✓	✓	✓	✓	—	✓
<i>Opuntia humifusa</i> (Raf.) Raf.	—	✓	✓	—	✓	✓	—
<i>Oxalis dillenii</i> Jacq.	—	—	✓	✓	—	—	—
<i>Panicum linearifolium</i> (Scribn.) Gould	—	✓	—	—	—	—	—
<i>Panicum oligosanthos</i> Schultes	✓	—	✓	✓	—	—	✓
<i>Panicum villosissimum</i> Nash	✓	✓	✓	✓	✓	—	✓
<i>Panicum virgatum</i> L.	✓	—	—	✓	—	—	—
<i>Paspalum bushii</i> Nash	—	—	✓	✓	—	—	—
<i>Paspalum ciliatifolium</i> Michx.	✓	—	—	—	—	—	—
<i>Penstemon grandiflorus</i> Nutt.	—	—	—	—	✓	—	—
<i>Penstemon pallidus</i> Small	—	✓	✓	—	—	—	—
<i>Phlox bifida</i> Beck.	—	—	—	✓	—	—	—
<i>Phlox</i> sp.	✓	—	—	—	—	—	—
<i>Physalis virginiana</i> Mill.	✓	—	—	✓	—	—	—
<i>Plantago aristata</i> Michx.	—	—	✓	—	—	✓	—
<i>Plantago lanceolata</i> L.	—	—	—	—	—	✓	—
<i>Plantago patagonica</i> Jacq.	—	—	—	—	—	—	—
var. <i>brevicarpa</i> (Shinnars) Shinnars	—	—	✓	✓	✓	—	—
<i>Polygala polygama</i> Walt. var. <i>obtusata</i> Chod.	—	—	✓	—	✓	—	✓
<i>Polygonella articulata</i> (L.) Meisn.	✓	—	—	—	—	—	—
<i>Potentilla recta</i> L.	—	—	—	—	—	✓	—
<i>Prunus serotina</i> Ehrh.	—	—	✓	—	—	—	—
<i>Quercus macrocarpa</i> Michx.	—	—	✓	—	—	—	—
<i>Quercus marilandica</i> Muenchh.	—	✓	—	—	—	—	—
<i>Quercus velutina</i> Lam.	✓	✓	✓	—	✓	—	✓
<i>Rhus aromatica</i> Aiton	—	—	—	—	✓	—	—
<i>Rhus copallina</i> L.	✓	—	—	—	—	—	✓
<i>Rhus glabra</i> L.	✓	✓	—	—	—	—	—
<i>Rosa carolina</i> L.	✓	—	—	—	—	—	—
<i>Rubus occidentalis</i> L.	—	—	✓	—	—	—	—

Associates	1	2	3	4	5	6	7
<i>Rubus pensylvanicus</i> Poir.	✓	—	—	—	—	—	—
<i>Rumex acetosella</i> L.	✓	—	✓	✓	—	—	✓
<i>Schizachyrium scoparium</i> (Michx.) Nash	✓	—	✓	—	—	—	✓
<i>Selaginella rupestris</i> (L.) Spring.	—	—	✓	✓	—	✓	—
<i>Solidago nemoralis</i> Aiton	—	✓	—	—	—	—	—
<i>Sorghastrum nutans</i> (L.) Nash	—	—	—	—	—	—	✓
<i>Stylisma pickeringii</i> (Torrey) Gray var. <i>pattersonii</i> (Fern. & Schub.) Myint	—	—	—	—	✓	—	—
<i>Tephrosia virginiana</i> (L.) Pers.	✓	✓	✓	—	—	—	—
<i>Thuja occidentalis</i> L.	—	—	—	—	—	✓	—
<i>Tradescantia ohiensis</i> Raf.	✓	✓	✓	—	✓	✓	✓
<i>Tragopogon dubius</i> Scop.	—	—	—	—	—	✓	—
<i>Triodanis perfoliata</i> (L.) Nieuwl.	—	✓	—	✓	✓	—	—
<i>Viola pedata</i> L.	✓	—	—	—	—	—	—
<i>Vulpia octoflora</i> (Walt.) Rydb.	—	—	✓	—	—	—	✓

Table 3. Results of sampling populations of *Talinum rugospermum* in La Salle Co., Illinois; all based on hoops enclosing a $\frac{1}{4}$ meter² area.

21 July 1993

La Salle Co., Illinois

East = $\frac{1}{2}$ mile west of South Ottawa

T33N R3E, NW $\frac{1}{4}$ of NW $\frac{1}{4}$ of section 14

K. R. Robertson 5105

West = 1 mile west of South Ottawa

T33N R3E, NW $\frac{1}{4}$ of SE $\frac{1}{4}$ of section 15

K. R. Robertson 5107

Plant #	No. of branches	No. of fruits	No. of pedicels	Flowering/non- flowering plants
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East

1	2	28	5	8/3
2	3	10	5	
3	2	14	4	
4	1	5	2	
5	3	14	5	
6	3	13	4	
7	2	31	5	
8	1	12	2	

East

1	1	3	2	15/1
2	2	11	4	
3	1	4	2	
4	1	3	1	
5	1	3	1	
6	1	0	1	
7	1	2	1	
8	1	12	2	
9	2	30	5	
10	1	0	1	

East

1	2	11	4	8/1
2	2	17	5	
3	1	1	2	
4	2	27	5	
5	1	0	1	
6	1	3	1	
7	2	19	4	
8	1	2	1	

East

1	1	4	2	3
2	2	11	3	
3	2	10	3	

(Table 3 continued)

Plant #	No. of branches	No. of fruits	No. of pedicels	Flowering/non- flowering plants
West				
1	2	1	1	16/5
2	1	1	1	
3	1	1	1	
4	1	2	1	
5	1	2	1	
6	1	2	1	
7	1	4	1	
8	1	1	1	
9	1	5	1	
10	2	11	3	
11	1	4	1	
12	1	8	2	
13	1	4	1	
14	1	4	2	
15	2	11	4	
West				
1	1	9	2	9/16
2	1	1	1	
3	1	2	1	
4	1	8	2	
5	2	9	2	
6	1	2	1	
7	1	2	1	
8	1	3	1	
9	1	0	1	
West				
1	1	15	6	5/0
2	1	0	1	
3	2	3	2	
4	2	15	3	
5	2	17	3	
West	edge of cliff			35/12

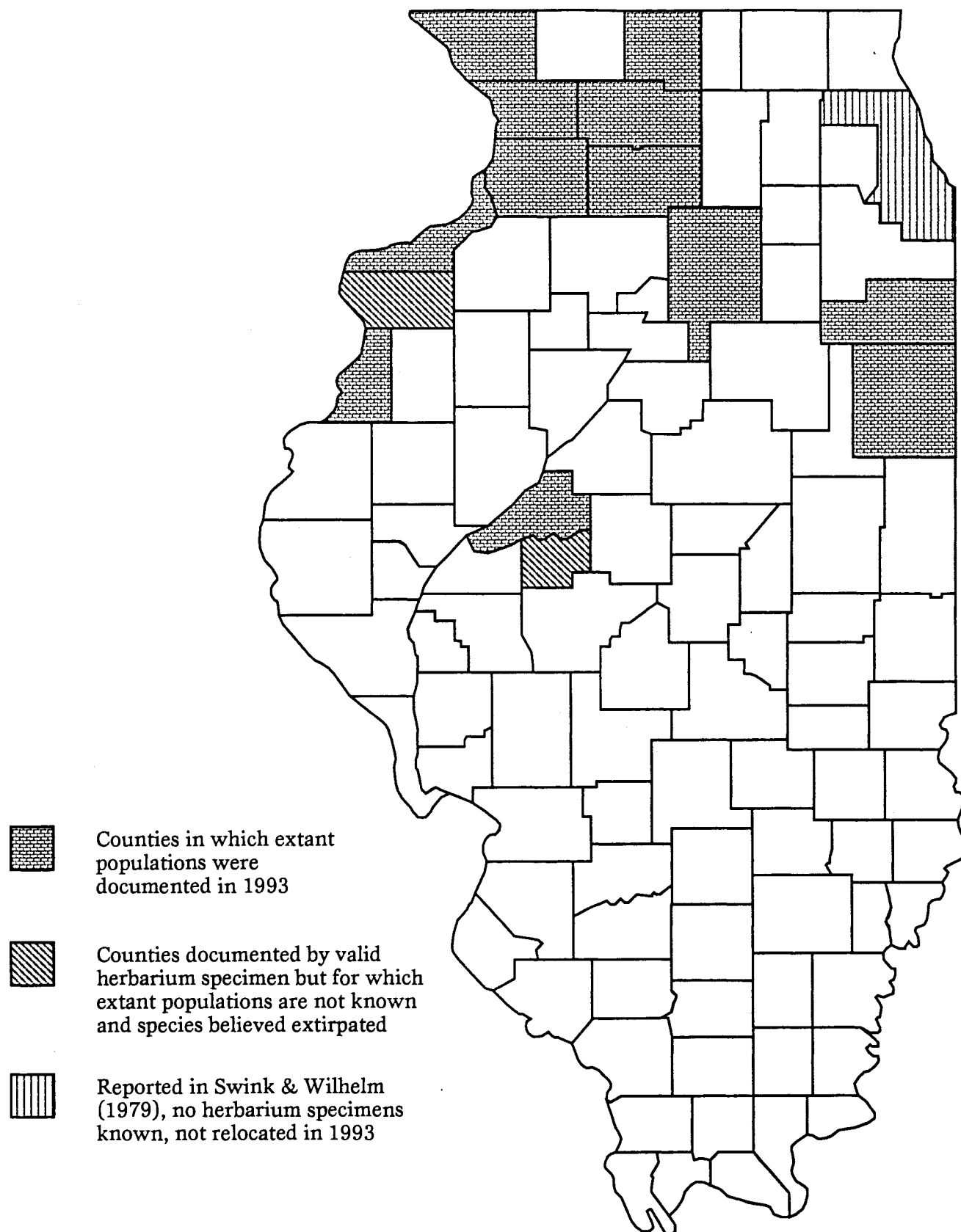
Table 4. Results of sampling population of *Talinum rugospermum* in Kankakee Co., Illinois; all based on hoops enclosing a $\frac{1}{4}$ meter² area.

Kankakee County
 Hooper Branch Savanna Nature Preserve
 T29N R11W S $\frac{1}{2}$ of $\frac{1}{4}$ NW of $\frac{1}{4}$ NW of section 13
 Phillippe & Gehlhausen 22651

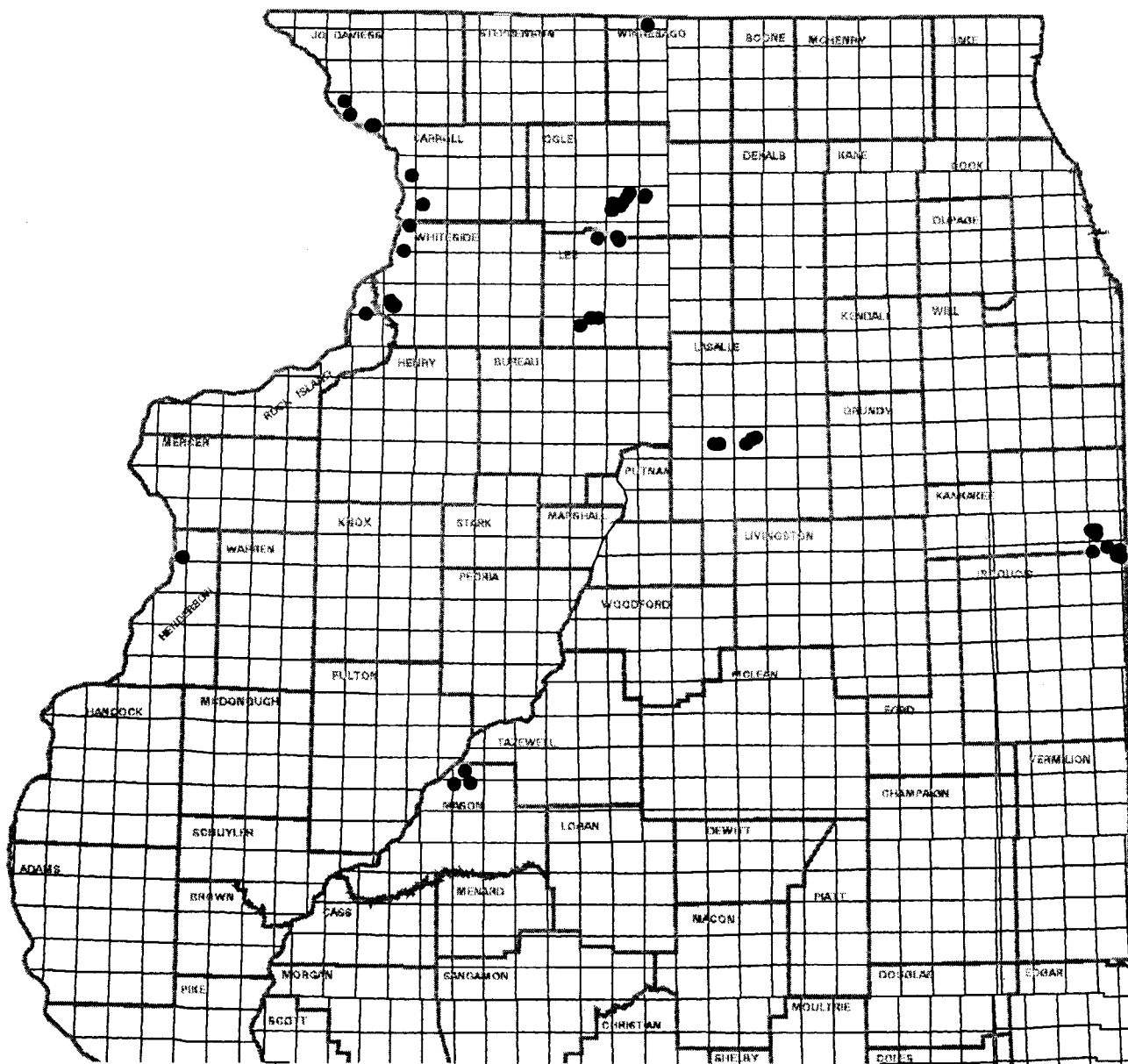
Site	Dimensions	Area	# hoops, $\frac{1}{4}$ meter ²	% of site sampled	hoops without <i>Talinum</i>
One	4.6m × 39.3 m	180.78m ²	72	10 %	46
Two	3.8m × 11.7m	44.46m ²	18	10 %	11
Three	8.7m × 48.5m	421.95m ²	168	10 %	96
Four	5.7m × 20.6m	117.42m ²	48	10 %	28
Totals		764.65m ²	306	10 %	181

	One	Two	Three	Four	Totals
Flowering plants	17	8	72	28	125
Non-flowering plants	48	11	131	37	227
Total branches	30	17	108	43	198
Total fruits	73	17	435	163	688
Total pedicels	38	18	165	54	275
Average branches/plant	1.8	2.1	1.5	1.5	1.7
Average fruits/plant	4.3	2.1	6.0	5.8	4.6
Average pedicels/plant	2.2	2.3	2.3	1.9	2.2
Estimated flowering plants in site	170	80	720	280	1250
Estimated non-flowering plants in site	480	110	1310	370	2270
Estimated total plants in site	650	190	2030	650	3520
Average seeds/fruit					20.16
Estimated total fruits					5750
Estimated total seeds					115,920

Map 1. Reported Distribution of *Talinum rugospermum* in Illinois



Map 2. Locations of extant populations of *Talinum rugospermum* in Illinois (also see Table 1 and Appendix 1).



Talinum rugospermum locations

Map 3. Distribution of *Talinum rugospermum* in the United States (from Cochrane 1993).

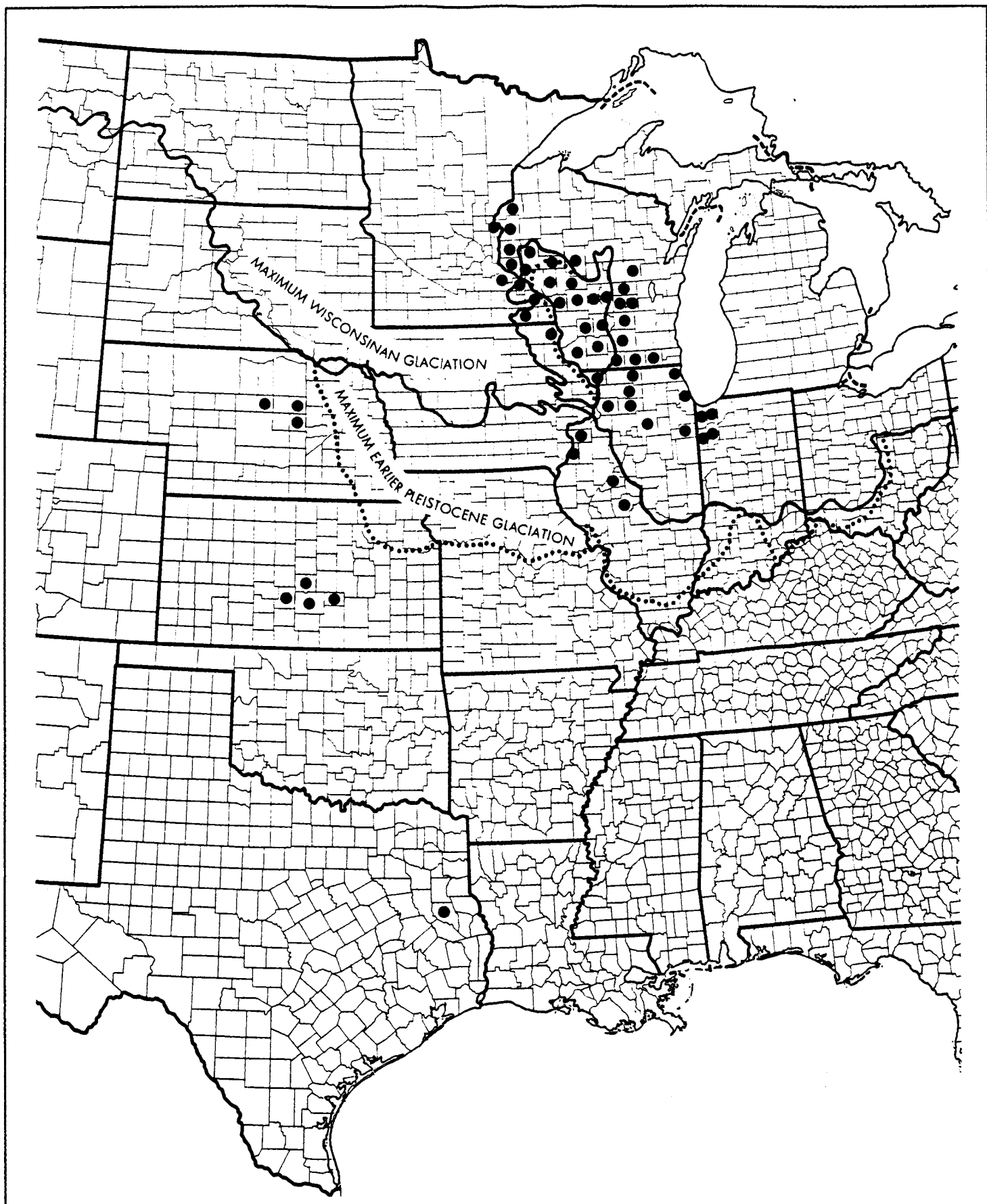


Figure 1. Distribution of *Talinum rugospermum* (based on herbarium specimens and records from correspondence and literature).

Herbarium records of *Talinum rugospermum*

Carroll Co. Illinois

T25N, R2E, NE1/4 Sect. 3

Savanna Army Depot, Green Island 7.5 minute topographic map.

Cattle exclusion area, sand prairie, in open sandy area, 12 flowering and 226 non-flowering plants.

Loy R. Phillippe, Sophia M. Gehlhausen, Kenneth R. Robertson & Randy Nyboer 22284

30 June 1993 (ILLS)

Carroll Co. Illinois

T23N, R4E, SW1/4 SE1/4 Sect. 17

One mile northeast of Thomson, French Woods Hill Prairie. Thomson 7.5 minute topographic map.

Hill Prairie, saw 51 flowering and 186 non-flowering plants growing on sandy hill prairie.

Loy R. Phillippe, Sophia M. Gehlhausen, Kenneth R. Robertson & Randy Nyboer 22318

30 June 1993 (ILLS)

Carroll Co. Illinois

Ayer's sand prairie, southeast of Savanna.

M. Bowles 1295

12 August 1977 (90831 ISM)

Carroll Co. Illinois

T24N R3E SW1/4 Sect. 24

Ayers Sand Prairie Nature Preserve. Wacker 7.5' topographic map. 2 miles southeast of Savanna on Airport Road, 0.5 mile east of Highway 84.

In exposed areas of open sand prairie. 254 flowering plants, 142 non-flowering plants.

Sophia M. Gehlhausen, Loy R. Phillippe, & Kenneth R. Robertson 103

30 June 1993 (ILLS)

Carroll Co. Illinois

T25N R2E NW1/4 Sect. 2

Savanna Army Depot. Green Island 7.5' topographic map.

Growing in open sand prairie with scattered black oak. 44 flowering plants, 85 non-flowering plants.

Sophia M. Gehlhausen, Loy R. Phillippe, Kenneth R. Robertson, & Randy Nyboer 89

30 June 1993 (ILLS)

Henderson Co. Illinois

T12N R5W SW1/4 NW1/4 Section 36

Big River State Forest, near abandoned railroad, ca. 4 miles northeast of Oquawka.

Sandy soil, open area.

Alfred C. Koelling 5445

19 June 1975 (88739 ISM)

Henderson Co. Illinois

Prairies.

Prairies, takes six weeks to dry.

H. N. Patterson s.n.

August 1871 (115492 F)

Henderson Co. Illinois

Near Oquawka.

Sandy Barrens.

Harry N. Patterson s.n.

September 1875 (2358, 154175, 372092 F; ILL- 2 specimens; 122554 MO)

Herbarium records of *Talinum rugospermum*

32

Henderson Co. Illinois

T12N R5W NW 1/4 of sect. 36 & NE 1/4 of sect. 35

Northeast of Oquawka at Big River State Forest, 1/2 mile east of county road 2450N on 1350E, area north of 1350E.

Sand blow out areas in sand prairie; *Talinum* in several blow outs.

Kenneth R. Robertson 4993

20 September 1992 (ILLS)

Henderson Co. Illinois

T12N R5W, NW 1/4 of Section 36 & NE 1/4 of section 35

Big River State Forest, 4 miles north of Route 164 at Oquawka on Keithsburg Road (1350E) and then 1/2 mile east on road 2450N.

Blow out areas in sand prairie on north side of road, found in several blow outs; 147 flowering plants.

Kenneth R. Robertson and Amanda S. Robertson 5024

21 June 1993 (ILLS)

Henderson Co. Illinois

T12N, R5W, SE1/4 Sect. 36

Big River State Forest, 3.5 miles north of Oquawka.

Sand Prairie.

Kenneth R. Robertson & J. Bouseman 4323

4 September 1986 (169852 ILLS)

Henderson Co. Illinois

T12N, R5W, Sect. 35

North of Oquawka, sand prairie.

Sand prairie.

R .A. Evers 114662

19 June 1975 (157031 ILLS)

Henderson Co. Illinois

Henderson State Forest.

Sandy open woods.

R. A. Evers 33403

6 June 1952 (56772 ILLS)

Iroquois Co. Illinois

T29N, R11W, NE1/4 NW1/4 Sect. 24

Iroquois County Conservation.

Dry sand barren.

J. Bacone & Michael H. Madany s.n.

(160997 ILLS)

Iroquois Co. Illinois

T29N, R11W, S1/2 NW1/4 NW1/4 Sect. 13

Hooper Branch Savanna Nature Preserve. Leesville 7.5 minute topographic map.

Sparse black oak forest in sand prairie. More than 3,000 plants.

Loy R. Phillippe & Sophia M. Gehlhausen 22651

29 July 1993 (ILLS)

Herbarium records of *Talinum rugospermum*

33

Iroquois Co. Illinois

T29N R11W SW1/4 SW1/4 Sect. 13

Donovan 7.5' topographic map. Hooper Branch Savanna Nature Preserve. Corner of 3300N and 3000E.

Sand prairie on south facing slope next to 3000E. Scattered Black Oak in area. 121 flowering plants, 126 non-flowering plants.

Sophia M. Gehlhausen & Loy R. Phillippe 46

15 June 1993 (ILLS)

Iroquois Co. Illinois

T29N R11W N1/2 SW1/4 Sect.13

Leesville 7.5' topographic map. Hooper Branch Savanna Nature Preserve. Nature preserve is just north of Iroquois County State Conservation Area.

Sand prairie on exposed south and southwest facing slopes. Scattered Black Oak in area. 180 flowering plants, 144 non-flowering plants. Nature preserve has potential for many more *Talinum* populations.

Sophia M. Gehlhausen & Loy R. Phillippe 52

15 June 1993 (ILLS)

Iroquois Co. Illinois

T29N R11W N-central portion of NW1/4 Sect.24

Donovan 7.5' topographic map. Iroquois County State Conservation Area. 2.5 miles southwest of Leesville.

Sand prairie on exposed south facing slope. Scattered Black Oak in area. 33 flowering plants, 64 non-flowering plants.

Sophia M. Gehlhausen & Loy R. Phillippe 57

15 June 1993 (ILLS)

Jo Daviess Co. Illinois

Hanover, sand prairie station 1.

Sand Prairie.

Frank C. Gates 2541

13 June 1908 (ILL)

Jo Daviess Co. Illinois

T26N, R1E, NE1/4 Sect. 25

Savanna Army Depot, Green Island 7.5 minute topographic map.

Sand Prairie with black oak. 10 flowering & 0 non-flowering; good habitat for more.

Loy R. Phillippe, Sophia M. Gehlhausen, Kenneth R. Robertson & Randy Nylboer 22315

30 June 1993 (ILLS)

Jo Daviess Co. Illinois

South of Blanding.

Sand Prairie.

R. A. Evers 35750

28 August 1952 (56773 ILLS)

Jo Daviess Co. Illinois

T26N R1E SE1/4 Sect.11

Restricted Area of Savanna Army Depot, near bunker F1306. Hanover 7.5' topographic map.

Growing in exposed areas of sand prairie with scattered Black Oak. 258 flowering plants, 90 non-flowering plants.

Sophia M. Gehlhausen, Loy R. Phillippe, Kenneth R. Robertson, & Randy Nylboer 100

30 June 1993 (ILLS)

Herbarium records of *Talinum rugospermum*

34

Kankakee Co. Illinois

About 6 miles east of St. Ann, about 2.5 miles south of Hopkins Park, 1 mile north of county line, in sandy road cut through the top of an old dune.

With *Sporobolus cryptandrus*, *Oenothera rhombipetala*, *Tradescantia ohimensis*, *Phlox bifida*, *Hymenopappus scabiosaeus*, *Panicum virgatum*, *Asclepias verticillata*, *Erigeron strigosus*, *Carex muhlenbergii*, *Lespedeza capitata*, *Quercus velutina*, *Physalis virginiana*, and *Helianthus occidentalis*.

Gerould Wilhelm and Lisa Byrne 3633

28 June 1977 (DEK; 23939 MOR)

Kankakee Co. Illinois

2 miles east of Wichert.

Sandy soil.

J. K. Bouseman s.n.

6 August 1960 (ILL)

Kankakee Co. Illinois

Along Savanna border on a dune on the north side of S700E Road, 7 miles east of St. Ann, 2 miles east of Pembroke Rd. Hundreds of plants, area had burned within the last growing season.

With *Erigeron strigosus*, *Silene antirrhina*, *Lepidium virginicum*, *Quercus velutina*, *Tradescantia ohimensis*, *Carex muhlenbergii*, *Asclepias verticillata*, *Paspalum ciliatifolium*, *Oxalis stricta*, *Cassia fasciculata*, *Hymenopappus scabiosaeus*, *Polygonatum canaliculatum*, *Lespedeza capitata*, *Commelina erecta* var. *deamiana*, *Ambrosia artemisiifolia* var. *elator*, *Smilacina stellata*, *Oenothera rhombipetala*, *Euphorbia corollata*, *Euphorbia glabrescens*, *Erigeron canadensis*, *Phlox bifida*, and *Monarda punctata* var. *villicaulis*.

Kenneth Dritz and Gerould Wilhelm 353

24 June 1984 (59311 MOR)

Kankakee Co. Illinois

T29N R11W, NE 1/4 of SW 1/4 of Section 12

Two miles southwest of Leesville, 1/3 mile north of Iroquois County Line, north of Leesville Savanna West Natural Area.

Sand prairie.

Kenneth R. Robertson 5022

17 June 1993 (ILLS)

Kankakee Co. Illinois

T30N, R11W, Sect. 29

West of Pembroke, southeast of Guiding Star Memorial Cemetery.

Sand Prairie, open sand blows.

Kenneth R. Robertson & J. Bouseman 4303b

2 July (168327 ILLS)

Kankakee Co. Illinois

T30N R11W, S 1/2 of N 1/2 of sect. 29

Guiding Star Savanna Natural Area, south of Cemetery.

Open area in sand prairie.

Kenneth R. Robertson & Scott C. McKay 4989

17 September 1992 (ILLS)

Kankakee Co. Illinois

T30N, R11W, middle of S1/2 SE1/4 Sect. 19

Saint Anne 7.5 minute topographic map. 1.25 miles west of Doney.

Good quality sand prairie with black oak. Counted 500 plants and probably many more present.

Loy R. Phillippe & Sophia M. Gehlhausen 21918

10 June 1993 (ILLS)

Herbarium records of *Talinum rugospermum*

35

Kankakee Co. Illinois

T30N, R11W, S1/2 N1/2 Sect. 29

Guiding Star Memorial Cemetery Natural Area. St. Anne 7.5 minute topographic map.

Sand prairie. The plants were located mostly in open areas near black oak trees. Counted 1000 plants and probably more could be found.

Loy R. Phillippe & Sophia M. Gehlhausen 21940

10 June 1993 (ILLS)

Kankakee Co. Illinois

T30N, R11W, SW1/4 SE1/4 Sect. 20

St. Anne 7.5 minute topographic map. Across road, north of the Guiding Star Memorial Cemetery Natural Area.

Open sand prairie. Counted 128 plants in about 5 minutes of searching and many more were undoubtedly present.

Loy R. Phillippe & Sophia M. Gehlhausen 21944

10 June 1993 (ILLS)

Kankakee Co. Illinois

T29N, R11W, SW1/4 SE1/4 Sect. 3

North side of road, large forested dune. Leesville 7.5 minute topographic map.

Sand prairie growing on large dune in sandy open areas with scattered black oak. Royal Horticultural Society Colour Chart 64-C (red-purple), 18 to 20 stamens on most plants; counted 422 plants on north side of road and 62 on south side of road.

Loy R. Phillippe & Sophia M. Gehlhausen 21945

10 June 1993 (ILLS)

Kankakee Co. Illinois

T29N, R11W, NE1/4 NE1/4 Sect. 12

Leesville 7.5 minute topographic map. Along roadside.

West side of road 71 plants in open area in sand prairie, east side of road 18 plants, potential habitat for more on east side of road.

Loy R. Phillippe & Sophia M. Gehlhausen 21954

10 June 1993 (ILLS)

Kankakee Co. Illinois

T29N R11W NE1/4 SW1/4 Sect. 12

Leesville 7.5' topographic map. Two miles southwest of Leesville; north of Leesville Savanna West Natural Area. Growing in large open sandy area near where house had been. More than 1000 plants present, flowers open at 5:00 pm.

Sophia M. Gehlhausen & Loy R. Phillippe 71

15 June 1993 (ILLS)

La Salle Co. Illinois

Starved Rock State Park.

Donald T. Ries s.n.

14 August 1938 (7490 ILLS)

La Salle Co. Illinois

Starved Rock.

In pockets of sand, summit of Starved Rock, rare.

F. E. McDonald s.n.

June, 1919 (486186 F)

Herbarium records of *Talinum rugospermum*

36

La Salle Co. Illinois
Starved Rock.
Sand at Starved Rock.
Frank C. Gates, and J. G. Sinclair 3197
8 August 1909 (292149 F)

La Salle Co. Illinois
Starved Rock State Park, St. Louis Canyon.
Sandy soil, rare.
Geo. D. Fuller 3060
20 June 1941 (6825 ISM)

La Salle Co. Illinois
T33N R3E, NW 1/4 of NW 1/4 of section 14
1/2 mile west of South Ottawa (railroad crossing and water treatment plant) along route 71, between north side of road and the Illinois River, east of Cargill grain elevator.
Sand prairie on thin soil on top of low cliffs above river, hundreds of plants.
Kenneth R. Robertson 5043
23 June 1993 (ILLS)

La Salle Co. Illinois
T33N R3E, NW 1/4 of SE 1/4 of section 15
1.0 mile west of South Ottawa (railroad crossing and water treatment plant) along route 71, between north side of road and the Illinois River, west of Cargill grain elevator.
Sand prairie on thin soil on top of low cliffs above river, hundreds of plants.
Kenneth R. Robertson 5058
23 June 1993 (ILLS)

La Salle Co. Illinois
T33N R2E, NW 1/4 of section 22
Starved Rock State Park, on Starved Rock proper, off to right while going up stairs, between 15 & 50 steps from top.
Plants on thin sandy soil on ledges and on faces of vertical sandstone, 7 flowering plants seen.
Kenneth R. Robertson 5063
23 June 1993 (ILLS)

La Salle Co. Illinois
T33N R2E, NW 1/4 of section 21
Starved Rock State Park, bluff trail to north of St. Louis Canyon, 1/4 mile east of Route 178.
Plants on thin sandy soil, 11 flowering plants seen.
Kenneth R. Robertson 5069
23 June 1993 (ILLS)

La Salle Co. Illinois
T33N R3E, NW 1/4 of NW 1/4 of section 14
1/2 mile west of South Ottawa (railroad crossing and water treatment plant) along route 71, between north side of road and the Illinois River, east of Cargill grain elevator.
Sand prairie on thin soil on top of low cliffs above river, hundreds of plants.
Kenneth R. Robertson 5105
21 July 1993 (ILLS)

Herbarium records of *Talinum rugospermum*

37

La Salle Co. Illinois

T33N R3E, NW 1/4 of SE 1/4 of section 15

1.0 mile west of South Ottawa (railroad crossing and water treatment plant) along route 71, between north side of road and the Illinois River, west of Cargill grain elevator.

Sand prairie on thin soil on top of low cliffs above river, hundreds of plants.

Kenneth R. Robertson 5107

21 July 1993 (ILLS)

La Salle Co. Illinois

Southwest of Naplate.

Sand Prairie on thin sand over sandstone.

R. A. Evers 113873

30 August 1974 (155938 ILLS)

La Salle Co. Illinois

T33N, R3E, Sect. 21

Southwest of Naplate.

Sand Prairie.

R. A. Evers 114549

11 June 1975 (157027 ILLS)

La Salle Co. Illinois

T33N, R3E, Sect. 16

Southwest of Naplate.

Sandstone outcrop.

R. A. Evers 114788

9 July 1975 (157028 ILLS)

La Salle Co. Illinois

T33N, R3E, Sect. 21

Southwest of Naplate.

Sand waste place.

R. A. Evers 114843

9 July 1975 (157029 ILLS; 90261 ISM)

La Salle Co. Illinois

Starved Rock.

On "Starved Rock" also found on other bluffs on Illinois River near Utica.

W. S. Moffatt 99

5 August 1900 (ILL)

Lee Co. Illinois

4.5 miles northwest of Franklin Grove.

Sandy hill.

Enos Keithley 278

(31480 ISM)

Lee Co. Illinois

4.5 miles northwest of Franklin Grove.

Sandy hillside, rare.

Geo. D. Fuller and Enos Keithley 11898

25 August 1946 (1461889 F; ILL; 18913, 85863 ISM)

Herbarium records of *Talinum rugospermum*

38

Lee Co. Illinois
Amboy.
Sandy hillside.
J. B. Long 795
26 July 1958 (ILL)

Lee Co. Illinois
Section 33
Amboy township.
Sandy oak woods.
James B. Long s.n.
27 September 1969 (85259 ISM)

Lee Co. Illinois
West of Amboy.
Sandy hill in woods, found on several hill tops.
Jim Long 1129
30 July 1989 (ILL)

Lee Co. Illinois
T19N R9E, N 1/2 of section 3
Reuter Road, ca. 600' south of Brewster Road, ca. 3 1/4 miles south of Walton.
Sand prairie along roadside, most plants on east side of road, road cut through sand ridge with black oak savanna beyond, 16 flowering plants.
Kenneth R. Robertson 5074
8 July 1993 (ILLS)

Lee Co. Illinois
T19N R9E, NE 1/4 of section 2
Scout Road, ca. 1000' south of Brewster Road, ca. 3 1/4 miles south of Walton.
Sand prairie along east side of road, road cut through sand ridge with black oak savanna beyond, 27 flowering plants.
Kenneth R. Robertson 5088
8 July 1993 (ILLS)

Lee Co. Illinois
T19N R9E, SW 1/4 of section 8
Green River Conservation area, ca. 1/4 mile east of Pump Factory Road and 1/4 mile south of Union Road.
Sand prairie, along old fire break lane, at east end of sand prairie and west edge of black oak savanna; 122 flowering plants.
Kenneth R. Robertson 5092
8 July 1993 (ILLS)

Lee Co. Illinois
T22N R10E, section 21
Nachusa Grasslands, second of the two easternmost sandstone knobs as one goes west along trail from sign at Lowden Road.
Thin soil on top of sandstone knob, probably 500+ plants.
Kenneth R. Robertson 5093
8 July 1993 (ILLS)

Herbarium records of *Talinum rugospermum*

Lee Co. Illinois
T22N R10E, section 21
Nachusa Grasslands, northwestern most knob in Lee County.
Thin soil on top of sandstone knob.
Kenneth R. Robertson 5100
8 July 1993 (ILLS)

Lee Co. Illinois
Dixon.
Vasey s.n.
(ILL)

Mason Co. Illinois
ca. 4 miles west of Manito, Mason State Forest.
Sandy soil , open oak woods.
Alfred C. Koelling 4967
19 July 1973 (88399 ISM)

Mason Co. Illinois
Sandy Ridge State Forest.
Clearings in oak woods on exposed soil.
Chris T. Maier s.n.
10 July 1975 (ILL)

Mason Co. Illinois
Sandy Ridge State Forest.
Clearings in oak woods.
Chris T. Maier s.n.
11 June 1973 (ILL)

Mason Co. Illinois
Sandy Ridge State Forest.
Clearings in dry oak woods.
Chris T. Maier s.n.
16 August 1974 (ILL)

Mason Co. Illinois
Mason County State Forest.
Sandy barren, petals rose pink.
John W. Thieret
22 June 1957 (53004 ISM)

Mason Co. Illinois
Mason County State Forest.
Sand Barren.
John W. Thieret 3596
22 June 1957 (70710 ILLS)

Herbarium records of *Talinum rugospermum*

40

Mason Co. Illinois

T22N R7W NW1/4 SW1/4 SE1/4 Sect.6

Henry Allan Gleason Nature Preserve. 3 miles north of Topeka in Sand Ridge State Forest. Duck Island 7.5' topographic map.

Growing in wide open sand prairie. 3 flowering plants, 1 non-flowering plant. Another population was present in unburned area near Black Oak trees, 20 plants.

Sophia M. Gehlhausen & Loy R. Phillippe 33

9 June 1993 (ILLS)

Mason Co. Illinois

T23N R7W NW1/4 SE1/4 Sect. 28

Sand Ridge State Forest, 2 1/5 miles northeast of Goofy Ridge. Duck Island 7.5' topographic map.

Growing in large open sand prairie on edge of black oak dominated woods. 51 plants in one opening, 67 in another; both flowering and non-flowering plants present.

Sophia M. Gehlhausen & Loy R. Phillippe 36

9 June 1993 (ILLS)

Menard Co. Illinois

Athens, Illinois.

E. Hall s.n.

1861 (453523 F)

Mercer Co. Illinois

T13N, R5W, Sect. 36

Southeast of Keithsburg.

Sandy roadside.

R. A. Evers 114674

19 June 1975 (ILL; 157030 ILLS; 88583 ISM)

Mercer Co. Illinois

Southeast of Keithsburg.

Sand Prairie.

R. A. Evers 48000

4 August 1955 (73742 ILLS)

Mercer Co. Illinois

Southeast of Keithsburg.

Sand Prairie.

R. A. Evers 80832

2 July 1964 (111594 ILLS)

Mercer Co. Illinois

South of Keithsburg.

Sand Prairie.

R. A. Evers 91766

12 July 1967 (124891 ILLS; 1981943 MO)

Ogle Co. Illinois

Castle Rock.

Sandstone Cliffs.

Alice E. Hills 3720-0

17 June 1943 (ILL)

Herbarium records of *Talinum rugospermum*

41

Ogle Co. Illinois
Castle Rock.
Sandy soil, rare.
Alice L. Hills 3211
4 September 1941 (18895 ILLS)

Ogle Co. Illinois
Near Castle Rock.
Sandy hillsides, occasional.
Alice L. Hills 3350-0
30 June 1942 (6828 ISM)

Ogle Co. Illinois
Dixon, Illinois.
D. Vasey s.n.
(45516 F)

Ogle Co. Illinois
Pine Rock Natural Area. 4 miles east of Oregon.
Sandy area below rock. Corolla pink.
Dorothy Richmond Wade and Douglas Edward Wade C-1618
11 July 1965 (DEK)

Ogle Co. Illinois
Castle Rock.
Sandy soil on top of sandstone.
Dr. E.W. Fell f45418
21 July 1945 (6832 ISM)

Ogle Co. Illinois
Dixon
Dr. George Vasey 1
(6820 ISM)

Ogle Co. Illinois
Liberty Hill, Oregon.
Sandy soil of sandstone rocks.
E. J. Hill 108,1905
8 July 1905 (ILL)

Ogle Co. Illinois
Near Castle Rock.
Sandy hillside, occasional.
Geo. D. Fuller 10895
5 August 1945 (6826, 6827 ISM)

Ogle Co. Illinois
One mile west of Castle Rock.
Open woods, on sand, common.
Geo. D. Fuller 13644
24 June 1948 (24773 ISM)

Herbarium records of *Talinum rugospermum*

42

Ogle Co. Illinois
Castle Rock.
Dry sandy soil, locally common.
Geo. D. Fuller 3211
4 September 1941 (6823 ISM)

Ogle Co. Illinois
Castle Rock.
Dry sandy soil, locally common.
Geo. D. Fuller 3211
4 September 1941 (6824 ISM)

Ogle Co. Illinois
Three miles south of Oregon.
Sandstone cliffs.
Geo. D. Fuller 9257
10 August 1944 (6831 ISM)

Ogle Co. Illinois
South of Oregon, Castle Rock
Dry sandy soil
Glen S. Winterringer 7296
20 July 1951 (36463 ISM)

Ogle Co. Illinois
Castle Rock, south of Oregon.
Sandy soil about rock out-crops.
Harry E. Ahles 4563
20 July 1951 (ILL; 9847 SIU)

Ogle Co. Illinois
T22N, R10E, SE1/4 SW1/4 SE1/4 SW1/4 Sect. 16
Nachusa Prairie, Daysville 7.5 minute topographic map.
Pink flowered perennial herb, west northwest-facing slope, 107 flowering and 64 non-flowering plants.
Loy R. Phillippe 22571
21 July 1993 (ILLS)

Ogle Co. Illinois
T22N, R10E, N1/2 SW1/4 SE1/4 SW1/4 Sect. 16
Nachusa Prairie, Daysville 7.5 minute topographic map.
Pink flowered perennial herb, south by southeast-facing slope and rock outcrop, 189 flowering and 207 non-flowering plants.
Loy R. Phillippe 22572
21 July 1993 (ILLS)

Ogle Co. Illinois
T22N, R10E, SE1/4 SW1/4 SW1/4 Sect. 16
Nachusa Prairie, Daysville 7.5 minute topographic map.
Pink flowered perennial herb, southwest-facing slope, 73 flowering and 34 non-flowering plants.
Loy R. Phillippe 22600
21 July 1993 (ILLS)

Herbarium records of *Talinum rugospermum*

43

Ogle Co. Illinois

T22N, R10E, SE1/4 SE1/4 SW1/4 Sect. 16

Nachusa Prairie, Daysville 7.5 minute topographic map.

Pink flowered perennial herb, on area not scraped of small knoll, 31 flowering and 9 non-flowering plants.

Loy R. Phillippe 22603

21 July 1993 (ILLS)

Ogle Co. Illinois

T23N, R11E, S edge Sect. 5

Pine Rock Nature Preserve, just north of Route 64, 4 mile east of Oregon. Saint Peter Sandstone. Oregon 7.5 minute topographic map.

Along road, 31 flowering and 6 non-flowering plants; further up in woods on south-facing sandstone bluff 44 flowering and 34 non-flowering plants.

Loy R. Phillippe & Sophia M. Gehlhausen 22324

7 July 1993 (ILLS)

Ogle Co. Illinois

T23N, R11E, center of NW1/4 Sect. 8

Pine Rock Nature Preserve, south of Route 64 near Pine Rock. Oregon 7.5 minute topographic map.

111 flowering and 54 non-flowering, primarily in artificially open area beneath power line.

Loy R. Phillippe & Sophia M. Gehlhausen 22329

7 July 1993 (ILLS)

Ogle Co. Illinois

T23N, R10E, NE1/4 Sect. 10

Open St. Peter Sandstone, bluff facing and over the Rock River, just off the Burlington Northern Railroad. Oregon 7.5 minute topographic map.

St. Peter Sandstone bluff, 345 flowering and 112 non-flowering plants.

Loy R. Phillippe & Sophia M. Gehlhausen 22331

7 July 1993 (ILLS)

Ogle Co. Illinois

T23N, R10E, SE1/4 NE1/4 Sect. 19

On Castle Rock in Castle Rock State Park. Grand Detour 7.5 minute topographic map.

Sandstone bluff facing the Rock River. 97 flowering and 57 non-flowering plants.

Loy R. Phillippe & Sophia M. Gehlhausen 22347

7 July 1993 (ILLS)

Ogle Co. Illinois

T23N, R10E, SW1/4 NW1/4 Sect. 20

Castle Rock State Park. Grand Detour 7.5 minute topographic map.

Sandstone bluff facing the Rock River. 133 flowering and 229 non-flowering plants.

Loy R. Phillippe & Sophia M. Gehlhausen 22348

7 July 1993 (ILLS)

Ogle Co. Illinois

T23N, R10E, NW1/4 S1/2 Sect. 2

Behind apartment building off of Lowden Road just off of Route 64. Oregon 7.5 minute topographic map.

St. Peter sandstone outcrop. 84 flowering and 52 non-flowering plants.

Loy R. Phillippe & Sophia M. Gehlhausen 22353

8 July 1993 (ILLS)

Herbarium records of *Talinum rugospermum*

44

Ogle Co. Illinois

T23N, R10E, NW1/4 SW1/4 Sect. 17

Castle Rock State Park, on open St. Peter Sandstone. Grand Detour 7.5 minute topographic map.

Open St. Peter Sandstone outcrop, 11 flowering and 9 non-flowering plants.

Loy R. Phillippe & Sophia M. Gehlhausen 22354

8 July 1993 (ILLS)

Ogle Co. Illinois

T23N, R10E, NW1/4 NE1/4 SE1/4 Sect. 16

On sandstone bluff just north of shooting range and old rock quarry. Daysville 7.5 minute topographic map.

Sandstone bluff of old rock quarry, counted 420 flowering and 448 non-flowering and easily more than 1,000 present.

Loy R. Phillippe & Sophia M. Gehlhausen 22362

8 July 1993 (ILLS)

Ogle Co. Illinois

Oregon.

Merton B. Waite s.n.

18 August 1885 (ILL)

Ogle Co. Illinois

Near Oregon.

On sandstone cliff.

Virginius H. Chase 18440

12 July 1965 (ILL; 106891 ILLS; 49413 MOR)

Ogle Co. Illinois

Oregon.

Rocky hills.

W. S. Moffatt 452

18 August 1895 (ILL; 160237 ILLS; 19542 MOR; SIU)

Rock Island Co. Illinois

T20N R2E SE 1/4 Sect. 33

Cordova 7.5' topographic map. 2 1/2 miles east of Cordova, off of Cordova-Erie Rd.

Growing in open areas of sand prairie with areas of forest dominated by Black Oak. 141 flowering plants, 178 non-flowering plants.

Sophia M. Gehlhausen, Loy R. Phillippe, Kenneth R. Robertson & Randy Nyboer 75

29 June 1993 (ILLS)

Whiteside Co. Illinois

T22N, R3E, Sect.34

Sand Prairie 2 miles east of East Clinton, Illinois.

Sand prairie.

John E. Ebbinger with Randy Nyboer 18001

24 June 1979 (EIU)

Whiteside Co. Illinois

T20N, R3E, NE1/4 Sect. 29

Paul Heun primary land owner, grazed sand prairie. Erie NW 7.5 minute topographic map.

Grazed native sand prairie, 62 flowering and 39 non-flowering plants.

Loy R. Phillippe 22609

22 July 1993 (ILLS)

Herbarium records of *Talinum rugospermum*

45

Whiteside Co. Illinois
T20N, R3E, SW1/4 NW1/4 SE1/4 Sect. 20
Sand Prairie, Erie NW 7.5 minute topographic map.
Sand Prairie, most of area in small dump.
Loy R. Phillippe 22635
22 July 1993 (ILLS)

Whiteside Co. Illinois
T22N, R3E, SE1/4 SE1/4 Sect. 2
Thomson-Fulton Nature Preserve. Thomson 7.5 minute topographic map. About 500 feet north of gravel road at south end of preserve and about 200 feet west of gravel road that runs northeast of preserve.
Sand prairie, undisturbed area. 24 flowering and 4 non-flowering plants.
Loy R. Phillippe 22637
22 July 1993 (ILLS)

Whiteside Co. Illinois
T20N, R3E, NW1/4 Sect. 28
Excellent sand prairie, appears ungrazed and unplowed. Erie NW 7.5 minute topographic map.
Sand Prairie. 18 flowering and 12 non-flowering plants.
Loy R. Phillippe 22642
22 July 1993 (ILLS)

Whiteside Co. Illinois
T22N, R3E, SE1/4 Sect. 34
Ruby Wirth property in set-aside program. 1.5 mile northeast of East Clinton, south of railroad. Clinton 7.5 minute topographic map.
Sand Prairie, 215 flowering and 549 non-flowering plants, saw *Hudsonia tomentosa* here but not associated with the *Talinum*. Habitat for more plants in the area on both sides of the railroad.
Loy R. Phillippe, Sophia M. Gehlhausen, Kenneth R. Robertson & Randy Nyboer 22272
29 June 1993 (ILLS)

Whiteside Co. Illinois
Northwest of Erie.
Sand Prairie.
R. A. Evers 75105
1 August 1962 (101565 ILLS)

Winnebago Co. Illinois
One mile west of Shirland, near Sugar River.
Sand hill. These mature plants show plainly that this plant is perennial--the book seems in doubt. --E.W. Fell
Dr. E. W. Fell f45517
10 August 1945 (6821 ISM)

Winnebago Co. Illinois
One mile west of Shirland, near Sugar River.
Sand hill.
Dr. E.W. Fell f45517
10 August 1945 (6822 ISM)

Winnebago Co. Illinois
1 mile west of Shirland.
Sandy hill near Sugar River.
E. W. Fell f45517a
10 August 1945 (ILL)

Herbarium records of *Talinum rugospermum*

46

Winnebago Co. Illinois
3 miles north of Shirland.
Sandy field, rare.
Geo. D. Fuller and E. W. Fell 11896
25 August 1946 (1461891 F)

Winnebago Co. Illinois
T29N R11E, NE 1/4 of NE 1/4 of section 32
3 1/2 miles northwest of Shirland, 0.2 mile northeast of Yale Bridge Road crossing of Sugar River, north of Yale Bridge Road.
Sand prairie opening in black oak savanna, 56 flowering plants in two areas.
Kenneth R. Robertson, Victoria Nuzzo, and Howard Oller 5061
24 June 1993 (ILLS)

Co. Indiana
Miller.
Sand; flowers open at 4:20 p.m.
Agnes Chase 1521
4 July 1901 (ILL)

Co. Indiana
Miller.
Sandy Ridge.
Agnes Chase 172
30 June 1897 (ILL)

Co. Indiana
Southwest of Wilson.
Sandy Ridge.
Agnes Chase 339
21 July 1897 (ILL)

Co. Indiana
Wilsons.
Sandy Hills by Calumet River.
E.J. Hill 181,1897
21 July 1897 (ILL)

Co. Indiana
Miller
Growing along road through open wooded dunes.
G. Pearsall 2046
5 July 1942 (1577309 F)

Co. Indiana
Miller.
Henry H. Babcock 353
September 1870 (ILL)

Co. Indiana
Miller's.

Dunes.
L.M. Umbach s.n.
23 June 1898 (86011 F)

Herbarium records of *Talinum rugospermum*

47

Co. Indiana
Miller's station.
Mason Bross s.n.
19 June 1880 (103691 F)

Co. Indiana
Clarke.
Infrequent, in open, dry, sandy woods.
O.E. Lansing, Jr. 3924
22 August 1915 (435743 F)

Co. Indiana
Miller.
Sandy Hills (rare).
Unknown 246
16 July 1893 (ILL)

Co. Indiana
Miller.
Sand-ridges.
W. S. Moffatt s.n.
6 June 1896 (160236 ILLS)

Jasper Co. Indiana
In disturbed sandy soil at base of black oak in savanna.

Thomas W. Post 183
8 August 1984

Lake Co. Indiana
T36 N, R7W, NE 1/4 SE 1/4 Sect. 5
Tollston Dunes, NE of KMart. East facing slope of old dune.
Along path in open dry sand savanna. 24 plants in one colony, pink flowers open only late afternoon.
Barbara Plampin and Emma Pitcher 5
21 August 1985 (65328 MOR)

Lake Co. Indiana
Millers.
Sandy ridges.
E.J. Hill 103,1876
14 August 1876 (ILL)

Lake Co. Indiana
Near the Baltimore and Ohio railroad, west of Lake Street, in the Miller section of Gary.
In open, sandy soil.
Floyd A. Swink 1360
21 June 1952 (1415286 F)

Lake Co. Indiana
Open woods on sand dune, rare.
Gordon Pearsall 7333
(6830 ISM)

Herbarium records of *Talinum rugospermum*

Lake Co. Indiana
 Miller, Indiana.
 Sand ridges.
 L. M. Umbach s.n.
 6 June 1896 (19538 MOR)

Lake Co. Indiana
 Miller.
 Sand-hills.
 W. S. Moffatt 373
 26 July 1895 (160235 ILLS; 19537 MOR)

Lane Co. Indiana
 H. A. Warne 30521
 (ILL)

Porter Co. Indiana
 1.5 mile north of the Baltimore and Ohio railroad and just east of the Lake county line.
 Open sand.
 R. M. Tryon, Jr. 2217
 13 August 1935 (1410992 F)

Co. Minnesota
 Taylors Falls.
 A. P. Anderson s.n.
 August 1894 (ILL)

Co. Minnesota
 Taylor Falls.
 On Rocks.
 E. J. Hill 225,1889
 30 August 1889 (ILL)

Co. Missouri
 Southwest of Gray's Summit on Highway 61 about 26 miles.
 Sandstone Glade, LaMotte Sandstone.
 J. W. Voigt 708
 15 June 1941 (9879 SIU)

Comanche Co. Oklahoma
 Near Cachee
 Grassy Creek Bank.
 G. W. Stevens 1323
 25 June 1913 (ILL)

Green Co. Oklahoma
 Near Granite.
 Mountain side.
 G. W. Stevens 1014
 17 June 1913 (ILL)

Herbarium records of *Talinum rugospermum*

49

Co. Wisconsin
Herbarium C. W. Short, M.D., Kentucky 1860
J. J. Hale s.n.
(KNOX)

Co. Wisconsin
8 miles below Winona.
On Trempealeau Prairie.
J. M. Holzinger s.n.
August 1899 (ILL)

Co. Wisconsin
Trempealeau Prairie.
Flowers from specimens growing in my garden, coll. June 24 1900. J.M. Holzinger coll. Winnona, Minn. Flowers from this specimen open from 3 to 6 p.m.
J. M. Holzinger s.n.
July 1897 (ILL)

Co. Wisconsin
Eight miles below Winona, on Trempealean Prairie.
Prairie, flowers open from 3 to 6 pm. Type specimen (topotype).
J. M. Holzinger s.n.
August, 1899 (122534 MO).

Co. Wisconsin
Sect. 24
Town of Cross Plains, 2 miles east of Pine Bluff.
Roadside off trunk S - sandstone bluff.
P. A. Orpurt s.n.
12 July 1949 (ILL)

Adams Co. Wisconsin
G. H. French s.n.
July 1869 (SIU)

Columbia Co. Wisconsin
Sect. 9
Ft. Winnebago.
Open sandy hilltop.
F. C. Seymour and F. R. Jones, Sr. 10341
8 and 9 September 1948 (MO ?)

Green Co. Wisconsin
Albany.
Sandy faces just off STH 59.
S. C. Wadmond 1896
18 August 1929 (ILL)

Polk Co. Wisconsin
Dry rocks.
F. H. Burglehaus s.n.
August 1892 (ILL)

Herbarium records of *Talinum rugospermum*

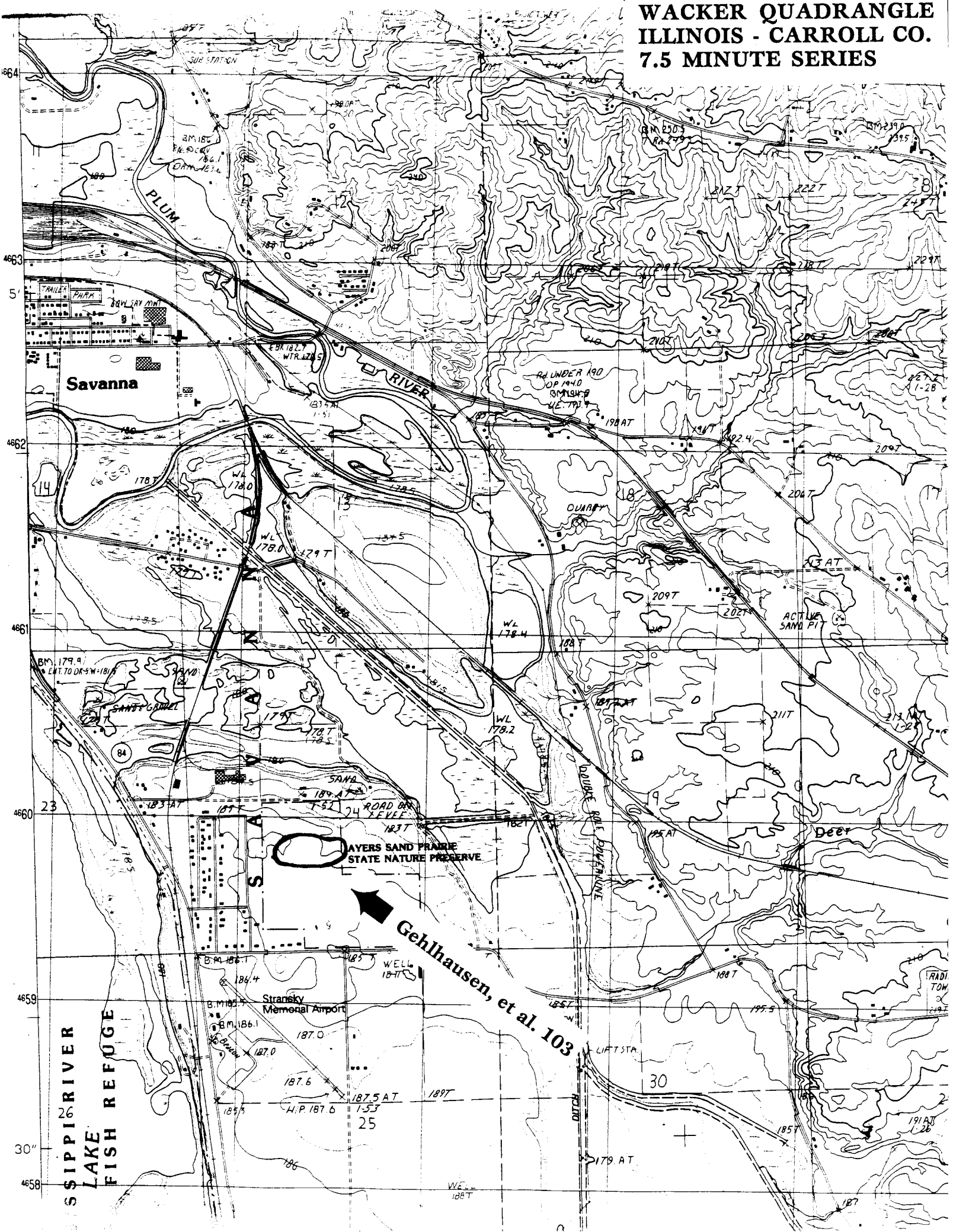
50

Sauk Co. Wisconsin
Two miles north of Spring Green.
Sandy hillside.
George Neville Jones 17631
19 July 1947 (ILL)

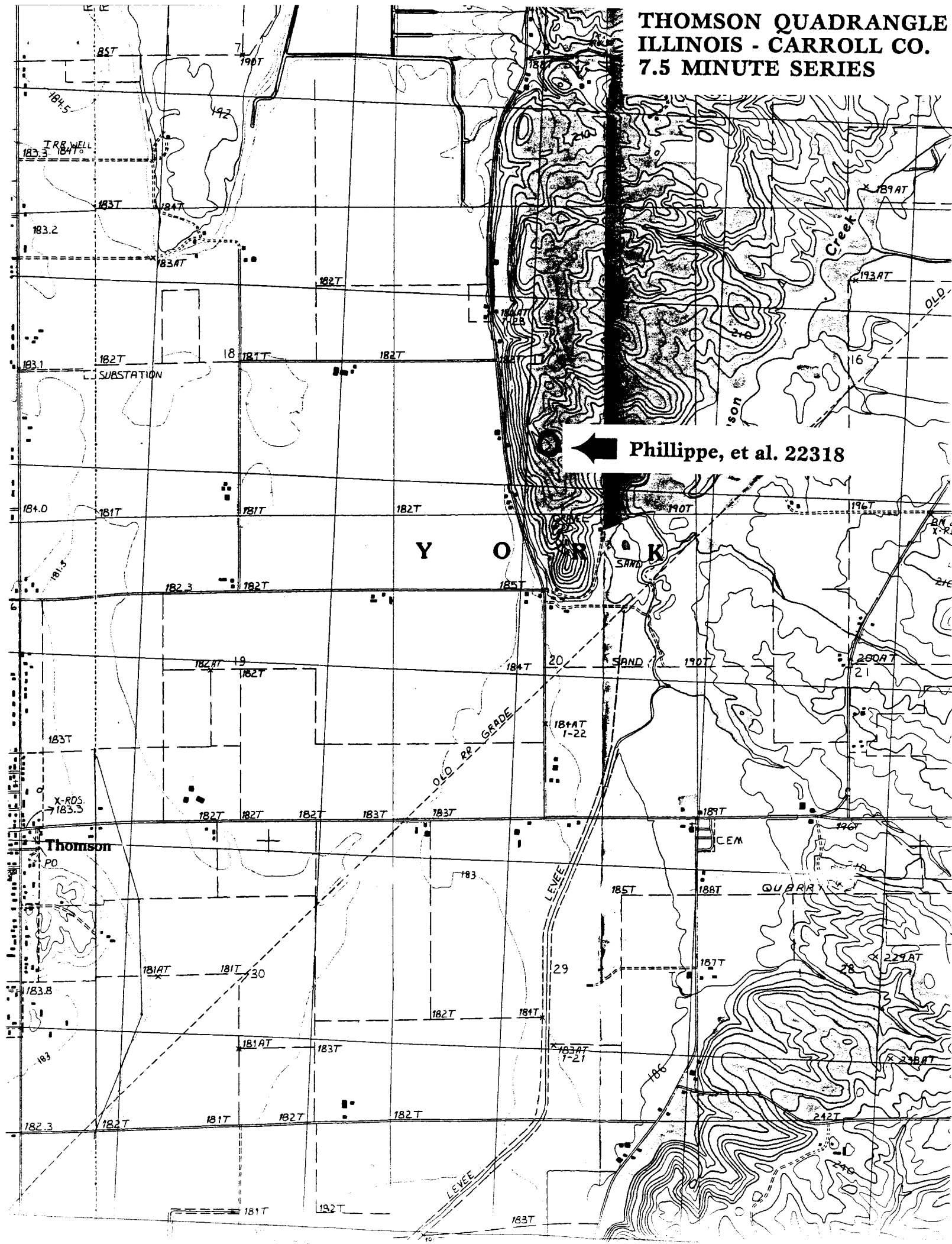
Sauk Co. Wisconsin
T8N, R3E, N 1/2 Sect. 7
Common along sandy road, Sauk County Park, Spring Green Township.
Sandy Road.
Robert H. Read 725
2 August 1970 (19530 MOR)

Waupaca Co. Wisconsin
At granite outcrop along Bean City Rd. 2.5 miles south of New London.
Granite outcrop.
Floyd Swink s.n.
14 August 1971 (19541 MOR)

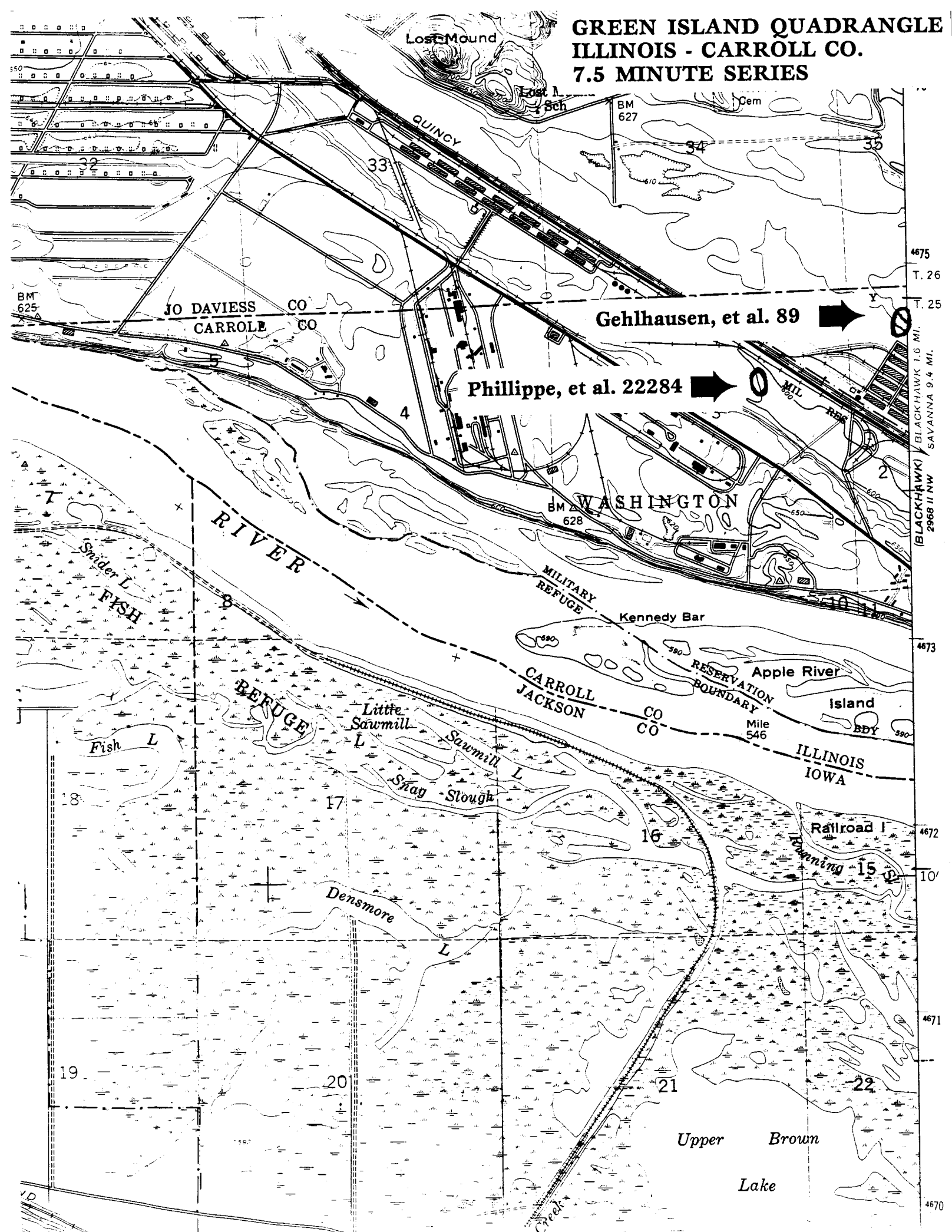
WACKER QUADRANGLE
ILLINOIS - CARROLL CO.
7.5 MINUTE SERIES



THOMSON QUADRANGLE
ILLINOIS - CARROLL CO.
7.5 MINUTE SERIES



**GREEN ISLAND QUADRANGLE
ILLINOIS - CARROLL CO.
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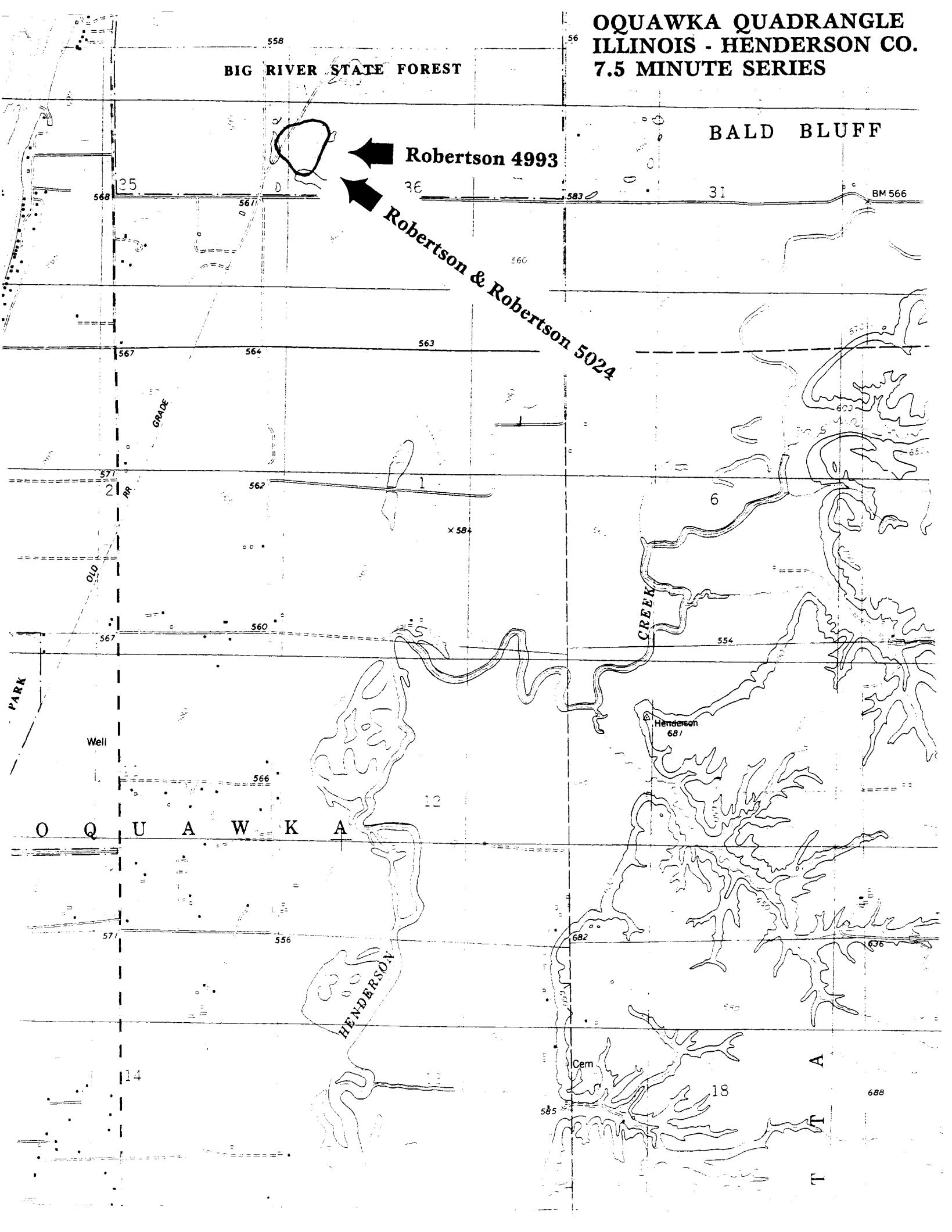
OQUAWKA QUADRANGLE
ILLINOIS - HENDERSON CO.
7.5 MINUTE SERIES

BIG RIVER STATE FOREST

BALD BLUFF

Robertson 4993

Robertson & Robertson 5024



DONOVAN QUADRANGLE
ILLINOIS - IROQUOIS CO.
7.5 MINUTE SERIES

IROQUOIS COUNTY

STATE CONSERVATION

Gehlhausen & Phillippe 46

Gehlhausen & Phillippe 57

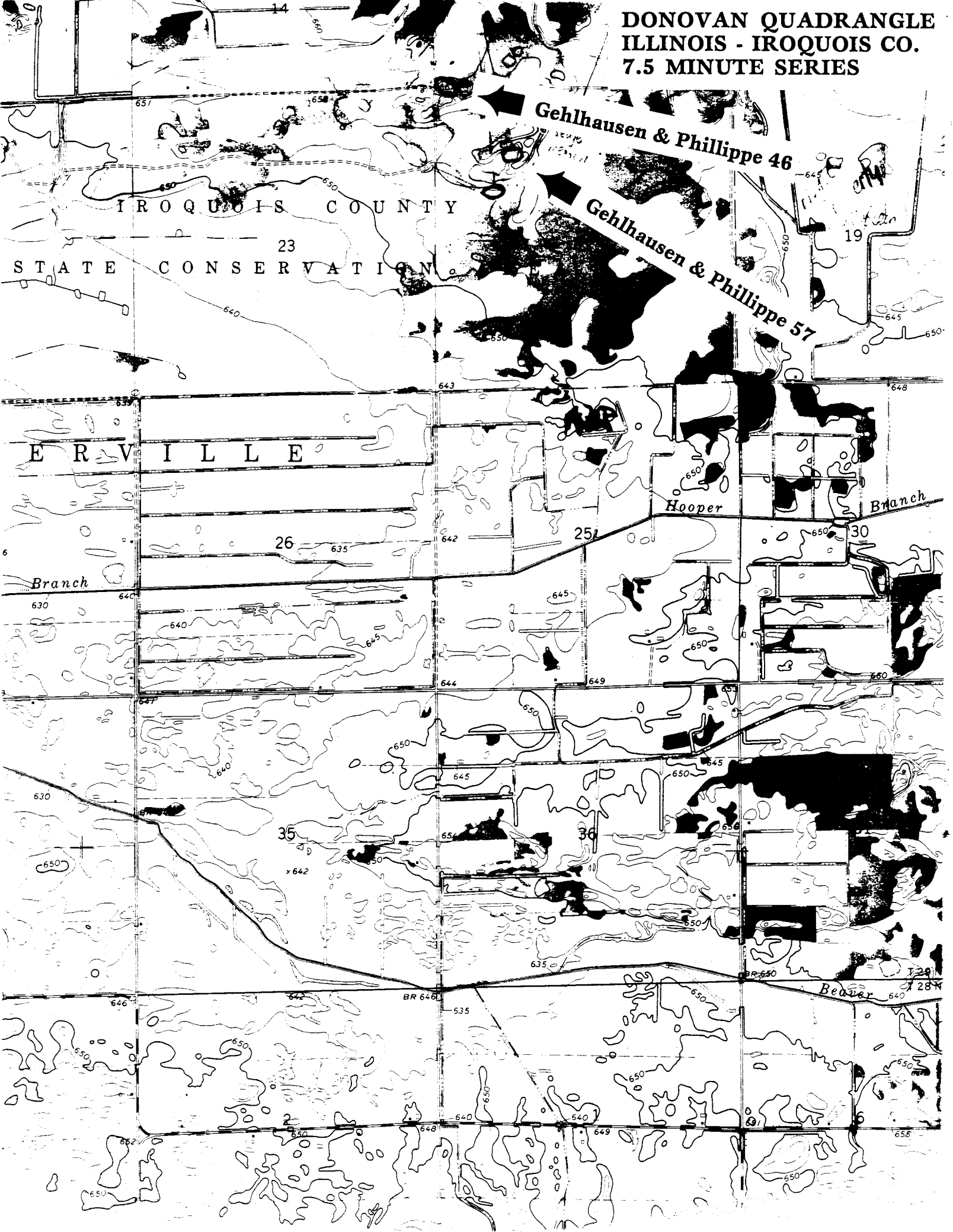
ERVILLE

Hooper

Branch

Branch

Beaver



LEESVILLE QUADRANGLE
ILLINOIS - KANKAKEE & IROQUOIS COS.
7.5 MINUTE SERIES

BR 666 36

666 665 662 658 657 662 673 671 670 665 662 655 654 659 670 665 662 655 683 670 668

34 35 36 1 2 10 11 12 13 14 15

Phillippe & Gehlhausen 21945

Robertson 5022

Gehlhausen & Phillippe 71

Phillippe & Gehlhausen 22651

Gehlhausen & Phillippe 52

KANKAKEE CO. IROQUOIS CO.

LEESVILLE

SCALE 1:24 000

n & Phillippe 71

Robertson 5022

Phillippe & Gehlhausen 22651

Gehlhausen & Phillippe 52

E A V E R ~~V I L L E~~ E

450

35' 451

452

(DONOVAN)
3465 I NE

453

458

32'30"

SCALE 1:24 000

3.11

GREEN ISLAND QUADRANGLE
ILLINOIS - JO DAVIESS CO.
7.5 MINUTE SERIES

SAVANNA

ARMY

DEPO

CROOKED SLOUGH

MILITARY REFUGE

ILLINOIS IOWA

UPPER

MISSISSIPPI RIVER

Golden Lake

Jackson L

Bar

Goose L

WILD

Flat L

Bonnie Lake

Western

Mile 552

Mile 550

Mile 615

Mile 632

Mile 636

Mile 630

Mile 620

Mile 610

Mile 600

Mile 590

Mile 580

Mile 570

Mile 560

Mile 550

Mile 540

Mile 530

Mile 520

Mile 510

Mile 500

Mile 490

Mile 480

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Mile 430

Mile 420

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Mile 30

Mile 20

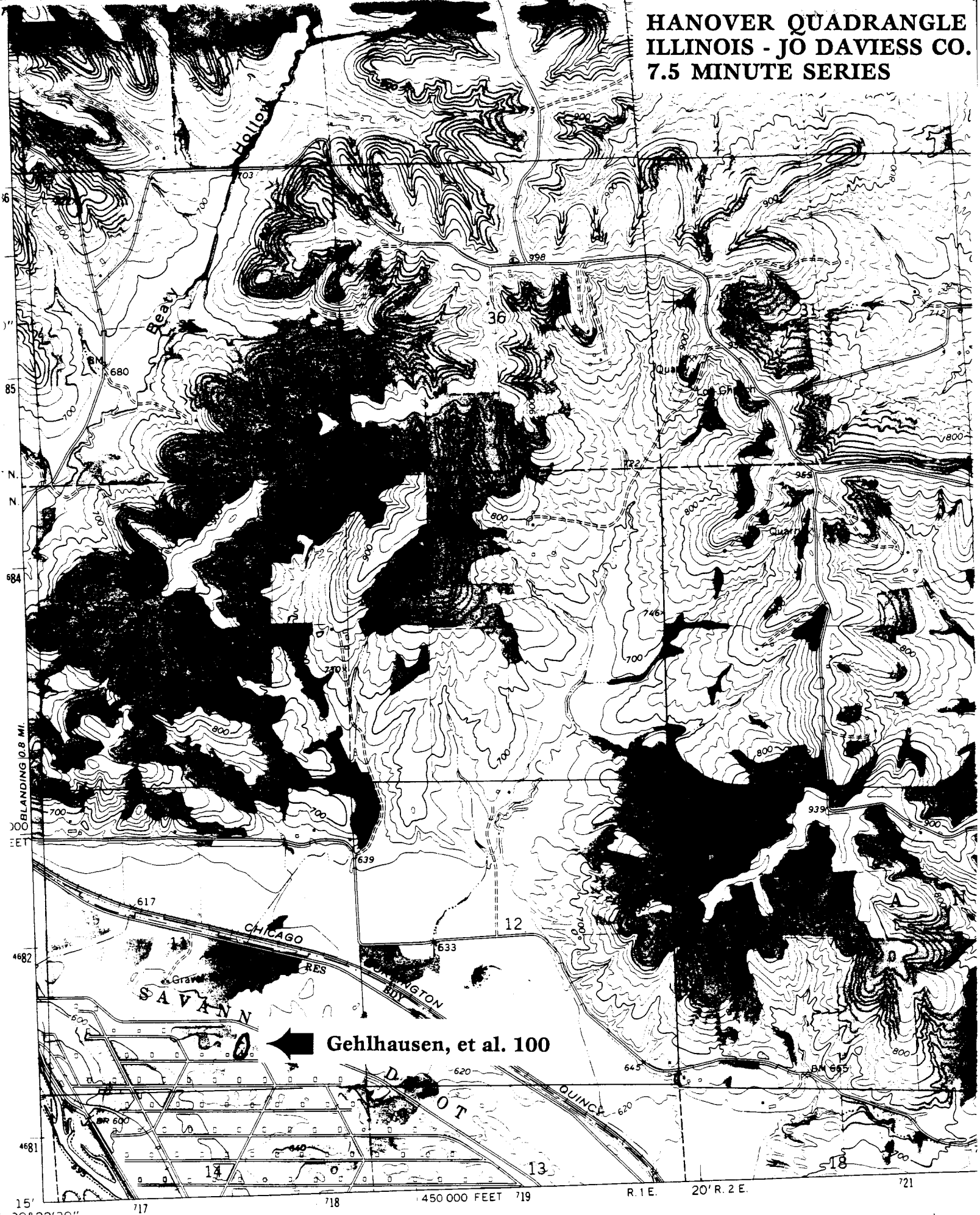
Mile 10

Mile 0

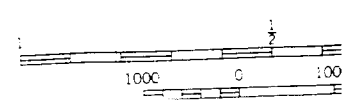
Phillippe, et al. 22315

Phillippe, et al. 22315

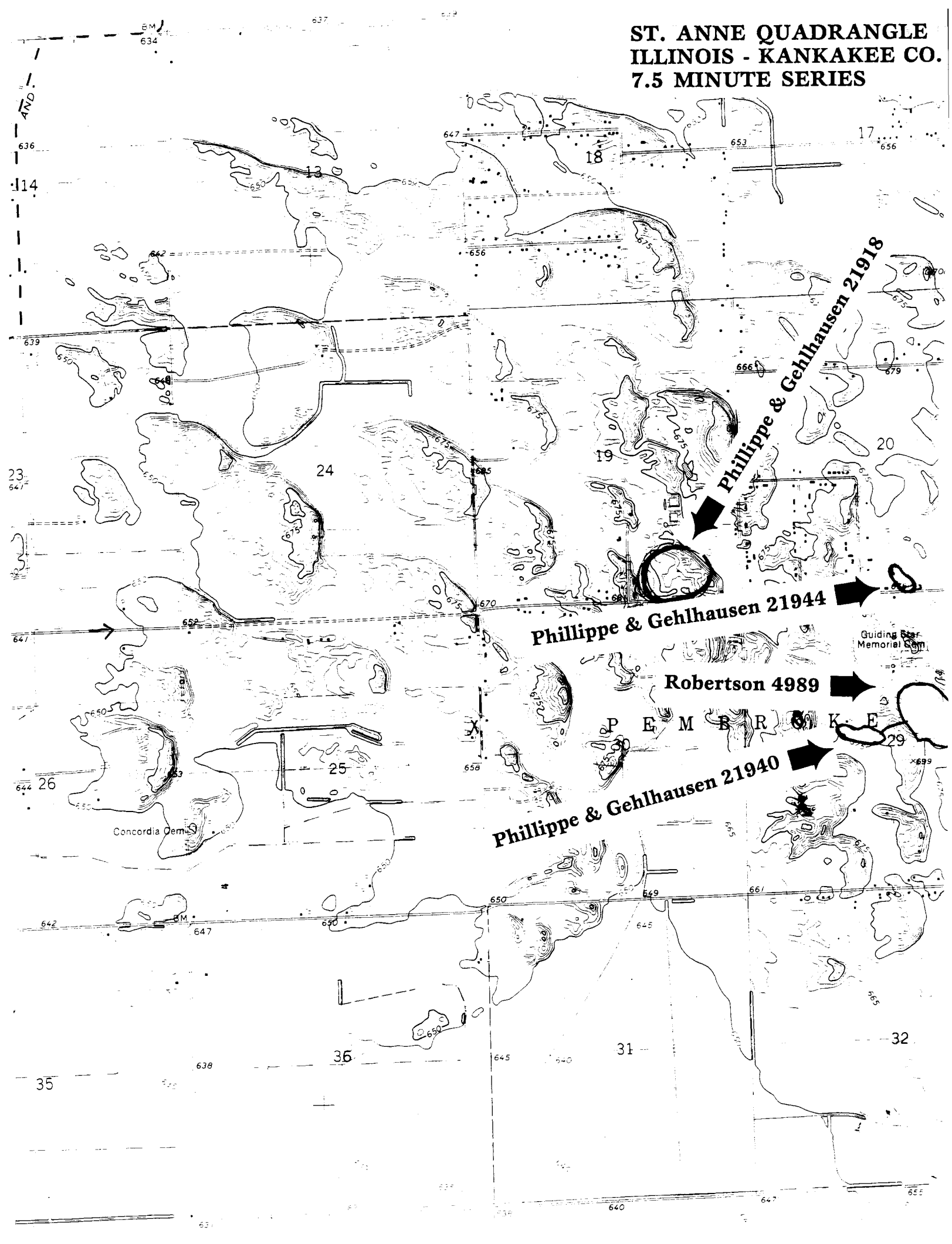
**HANOVER QUADRANGLE
ILLINOIS - JO DAVIESS CO.
7.5 MINUTE SERIES**



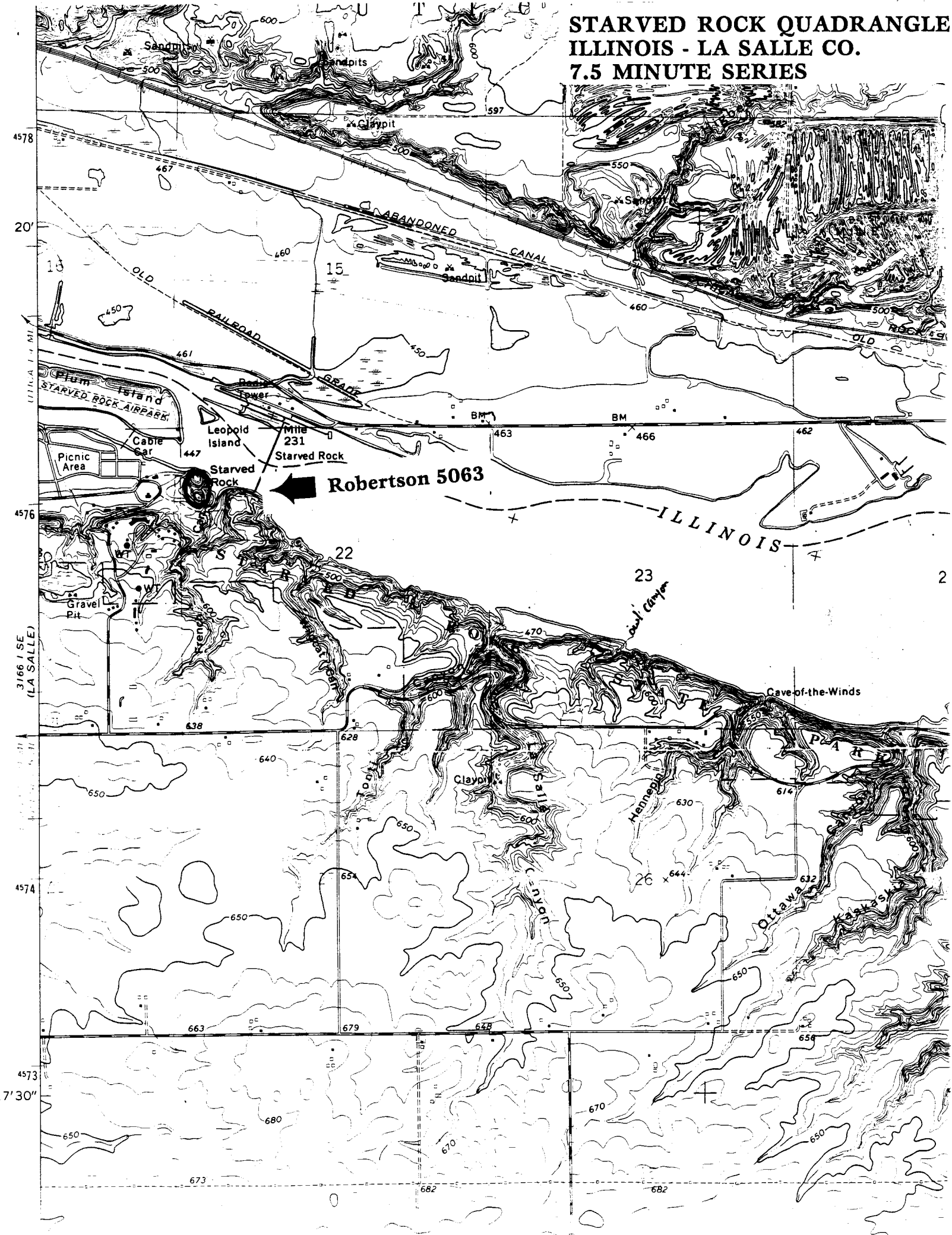
Mapped, edited, and published by the Geological Survey
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ST. ANNE QUADRANGLE
ILLINOIS - KANKAKEE CO.
7.5 MINUTE SERIES



STARVED ROCK QUADRANGLE
ILLINOIS - LA SALLE CO.
7.5 MINUTE SERIES



Memorial Park

Drive-in
Theater

LA SALLE QUADRANGLE
ILLINOIS - LA SALLE CO.
7.5 MINUTE SERIES

Utica
(North Utica)

Gravel Pits

Sewage Disposal

Mile
230

Campground

Starved Rock Airfield

STARVED ROCK

STATE PARK

Sewage Disposal

Robertson 5069

STARVED ROCK STATE PARK

Gravel Pit

GRAVEL PIT

BM 646

Deer Park
Country Club

MATTHIESSEN
STATE PARK

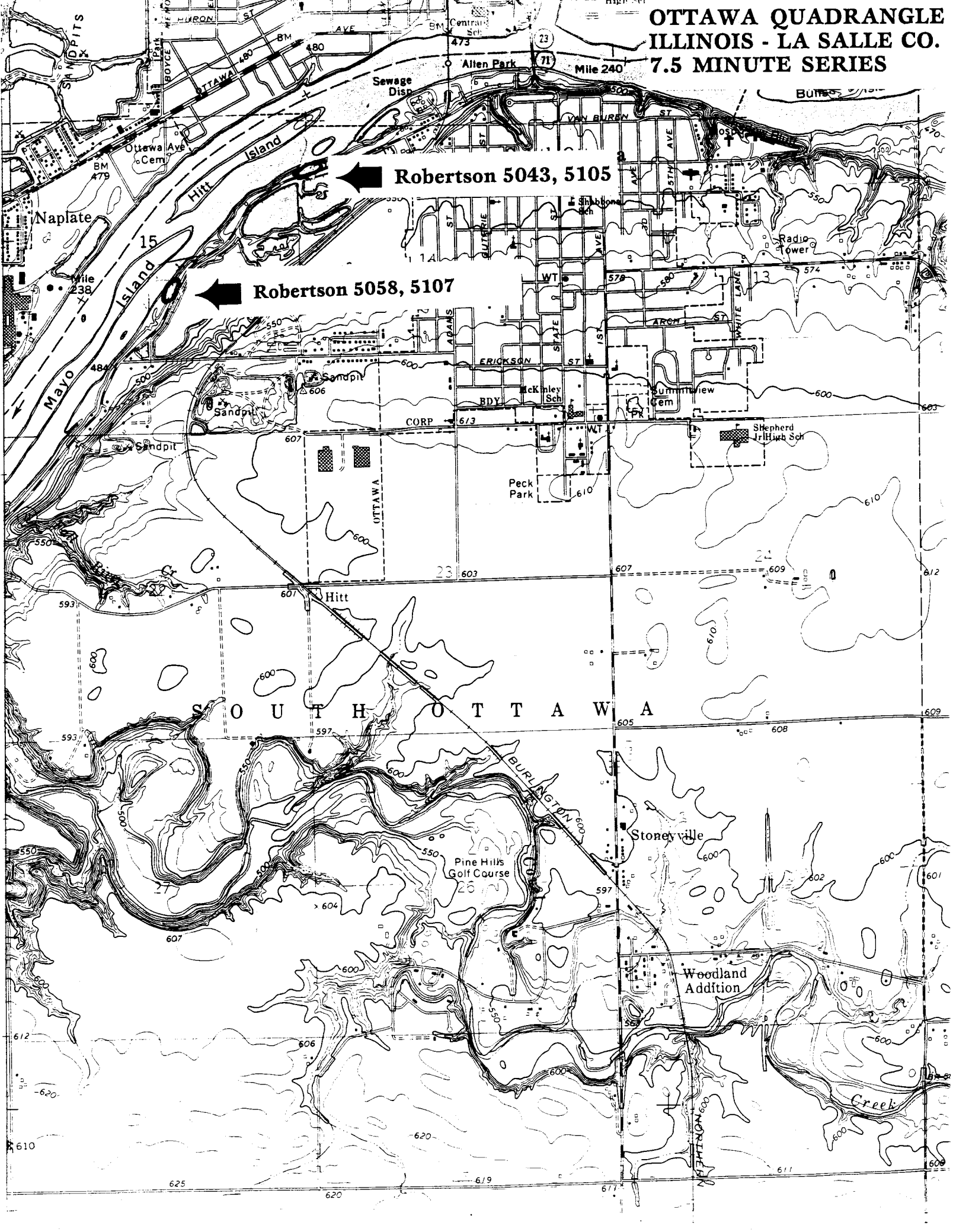
QUARRY

Lehigh
Memorial Park

Cement Plant

BM 650

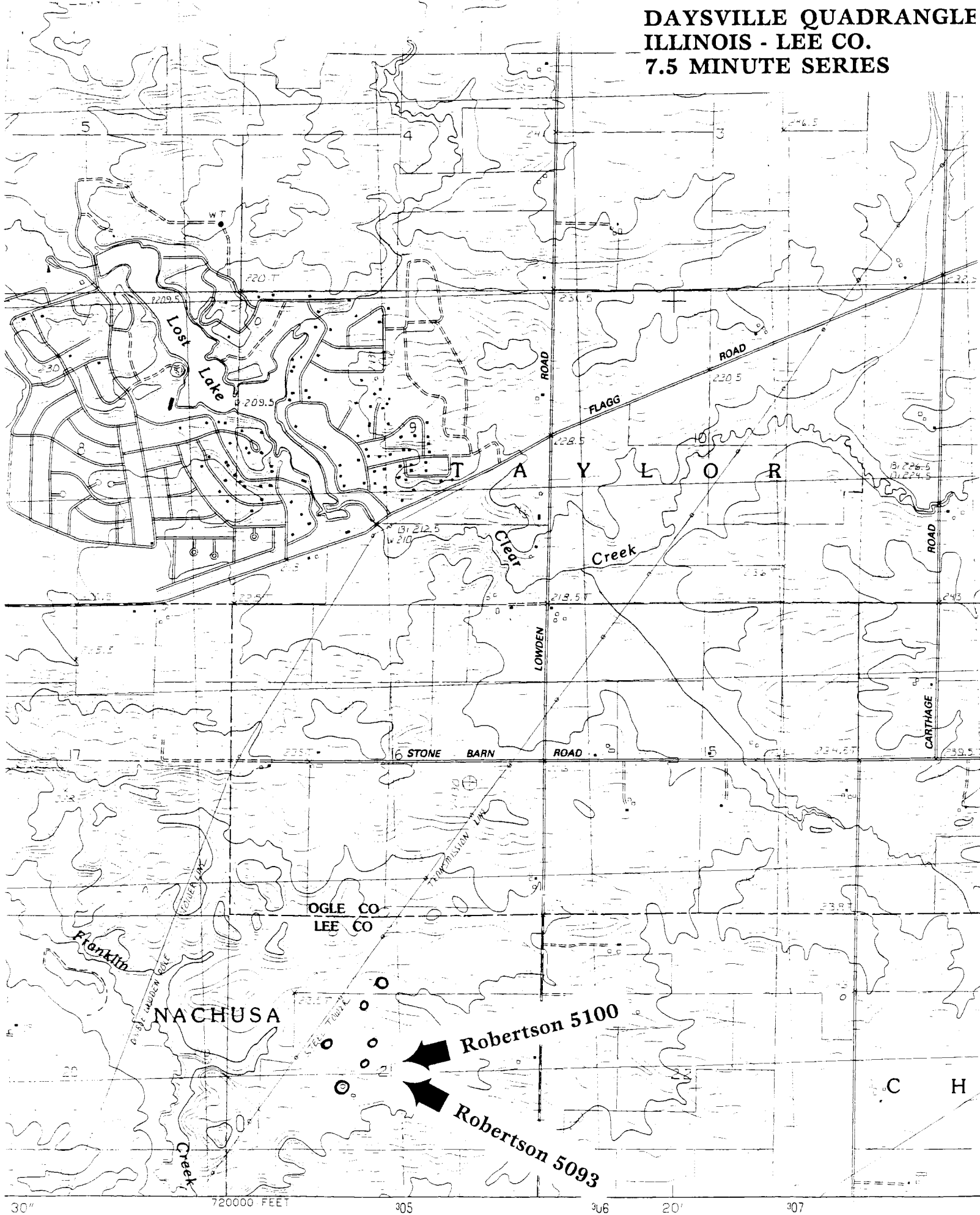
OTTAWA QUADRANGLE
ILLINOIS - LA SALLE CO.
7.5 MINUTE SERIES



Robertson 5043, 5105

Robertson 5058, 5107

**DAYSVILLE QUADRANGLE
ILLINOIS - LEE CO.
7.5 MINUTE SERIES**



WALTON QUADRANGLE
ILLINOIS - LEE CO.
7.5 MINUTE SERIES

Robertson 5074

Robertson 5088

St. Groves River

Camp Joy Bible Camp

Camp H C Warner

Stevens Cem

Union Ch

Sandpit

Maytown

REUTER ROAD

SCOUT ROAD

DOWNEY ROAD

34 35 10 11 12 13 14 15 22 23 24

296

(OHIO;
3167 H. C. W.

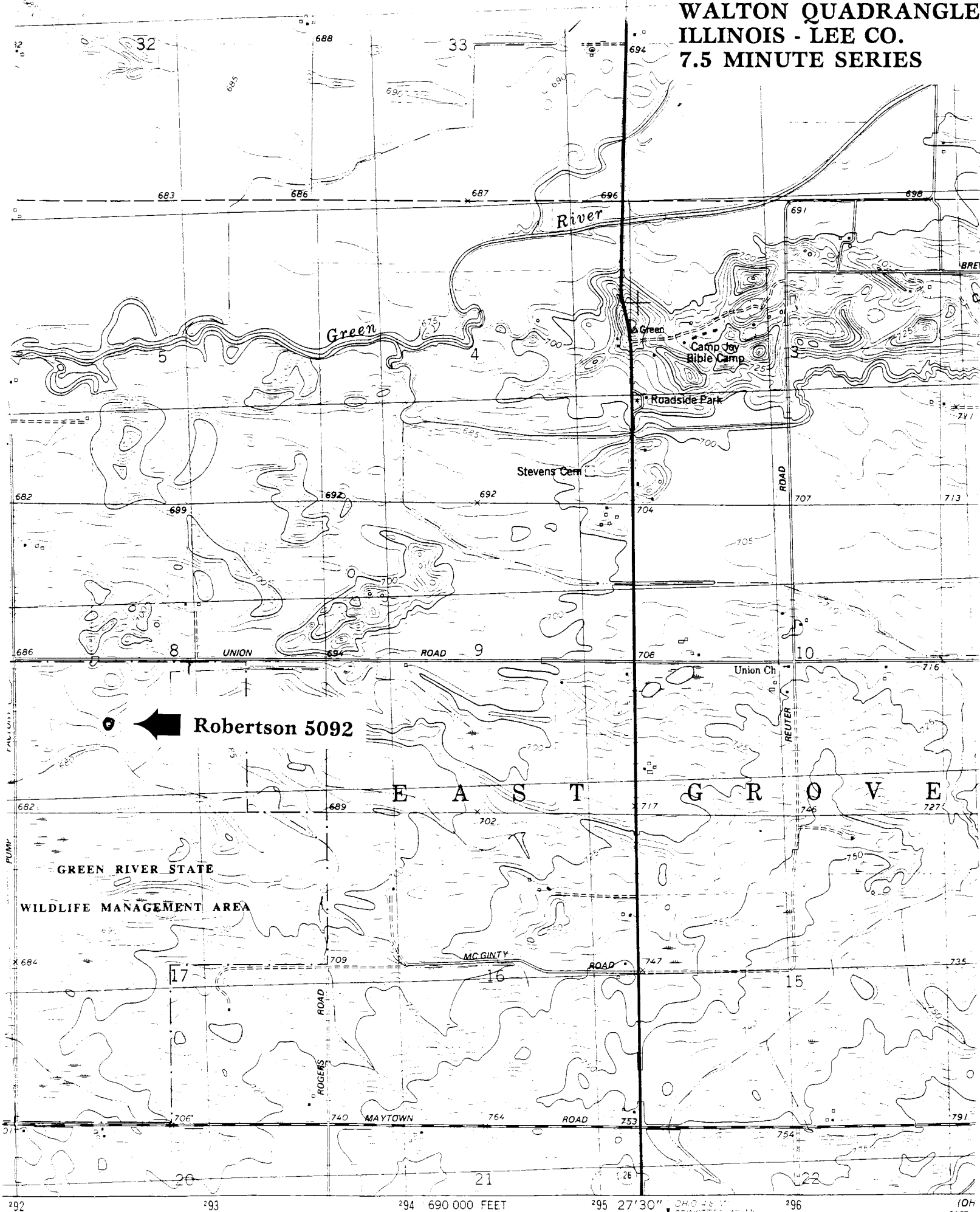
298

25

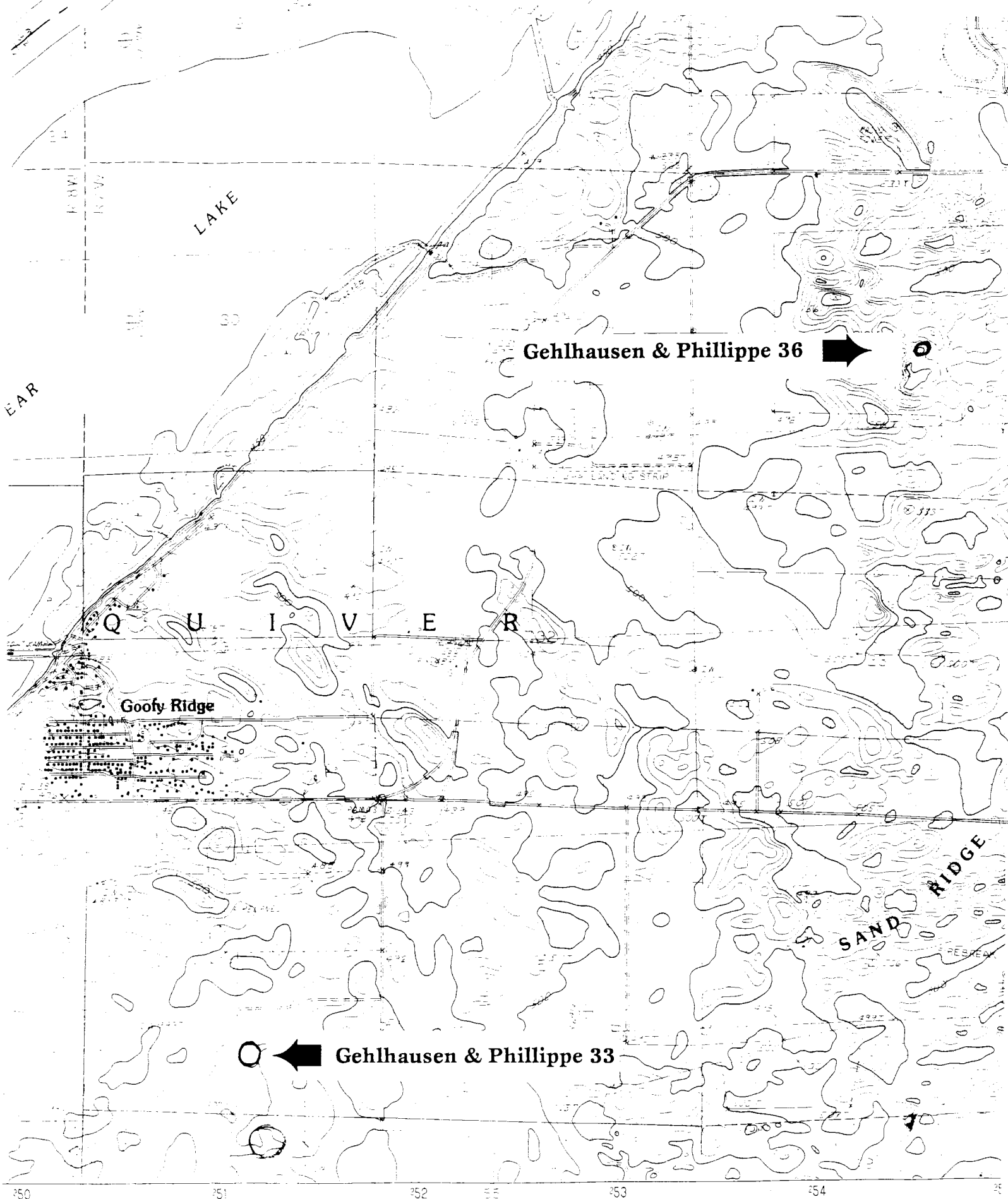
200

SCALE 1.24 000

WALTON QUADRANGLE
ILLINOIS - LEE CO.
7.5 MINUTE SERIES

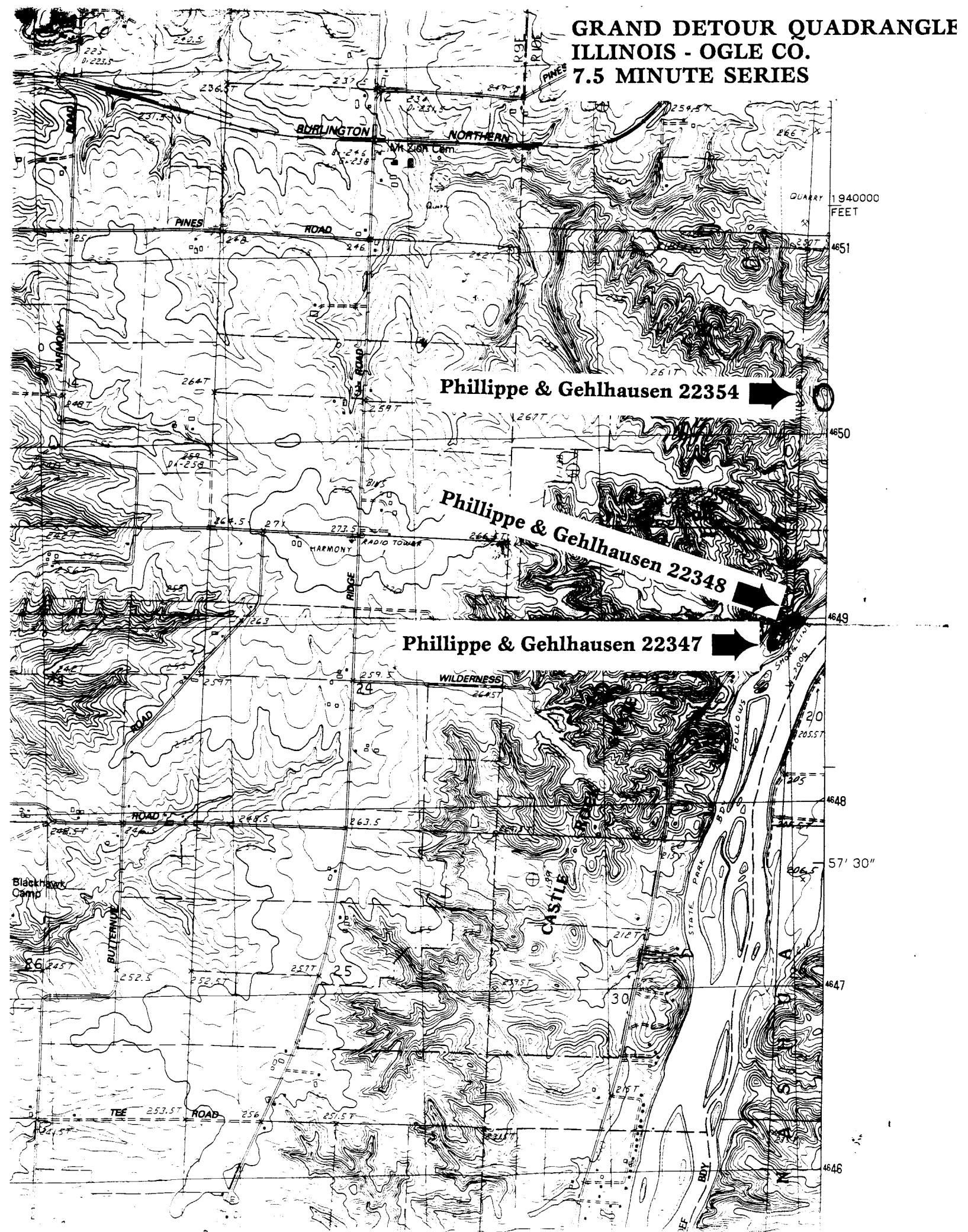


DUCK ISLAND QUADRANGLE
ILLINOIS - MASON CO.
7.5 MINUTE SERIES

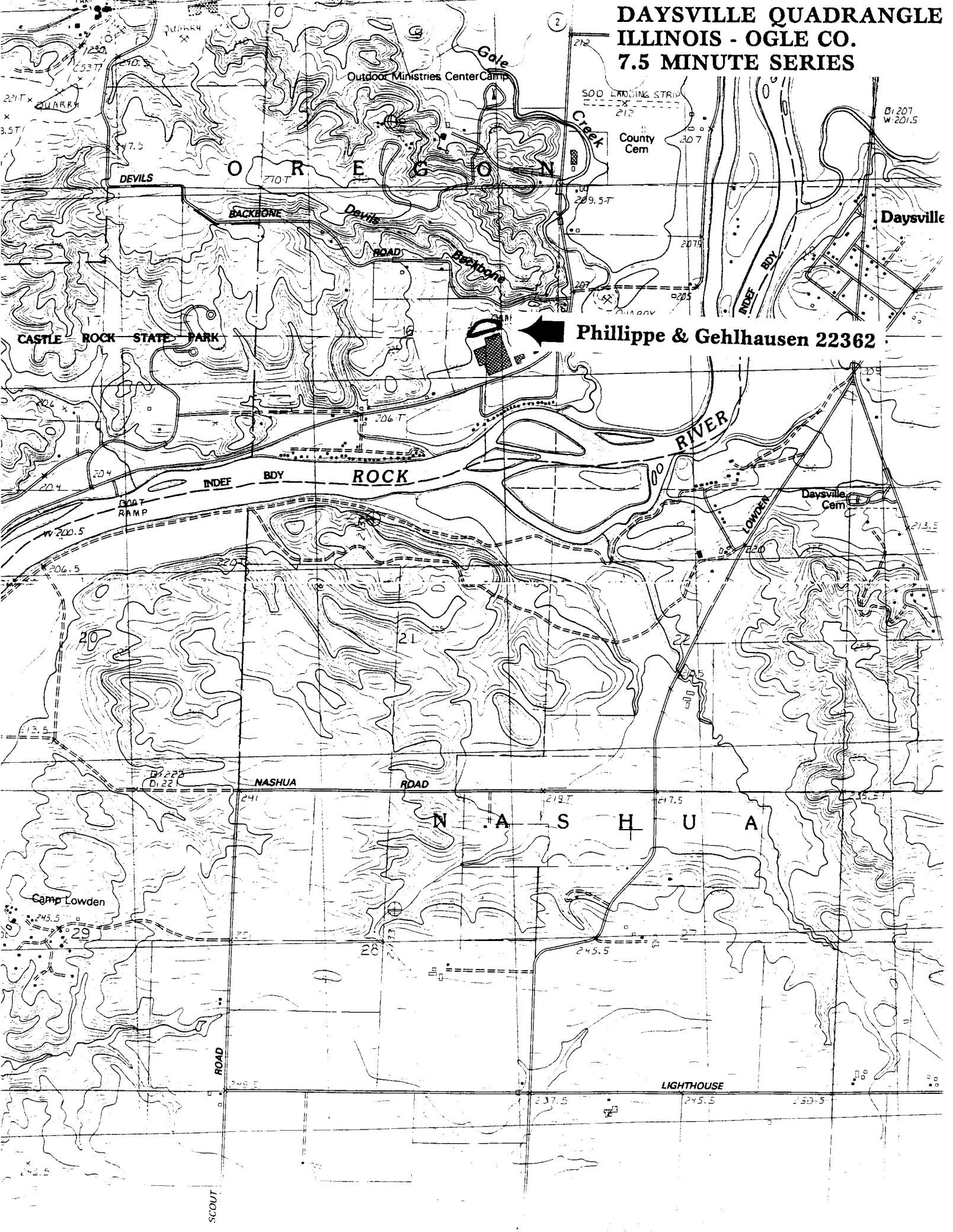


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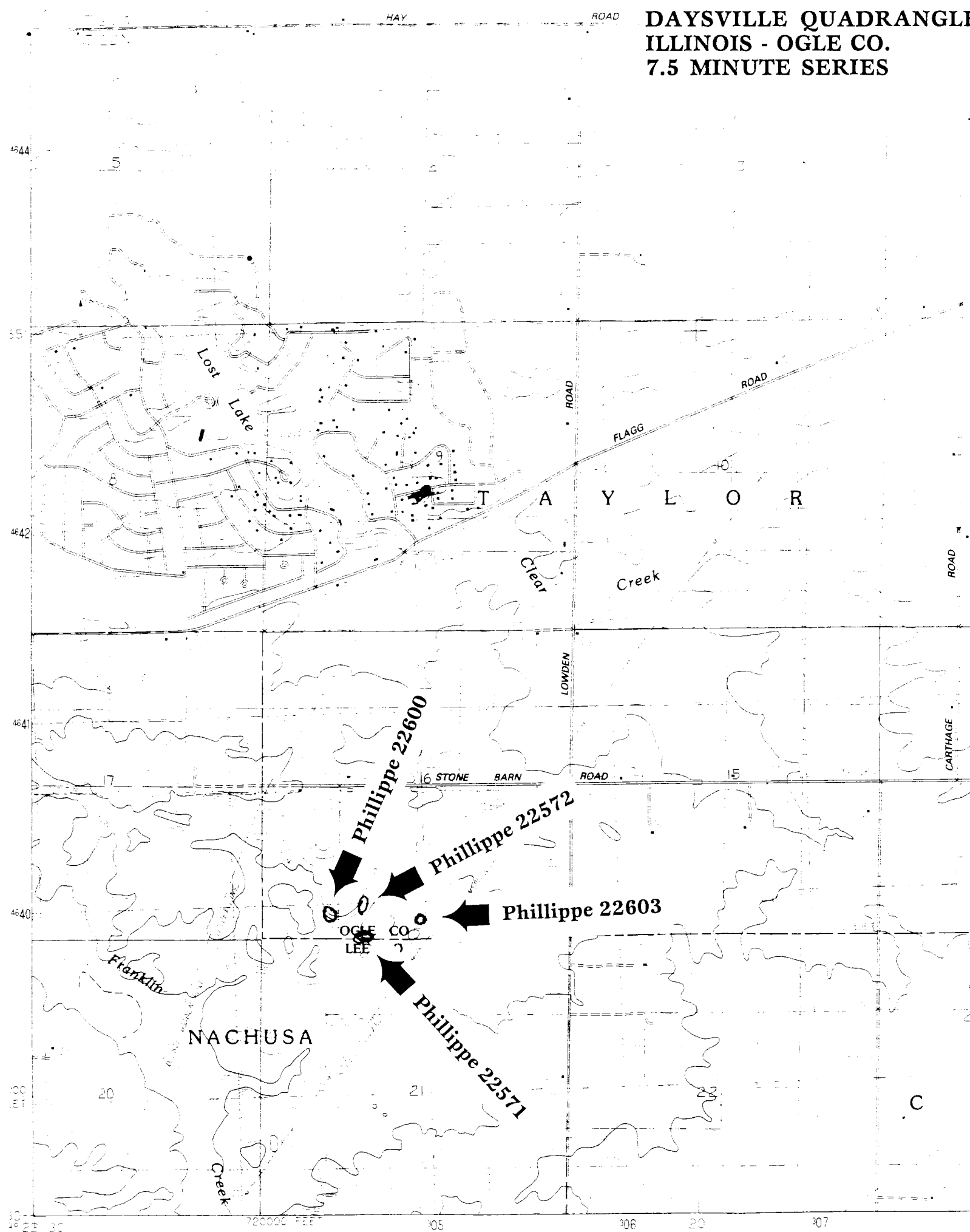
7.5 MINUTE SERIES



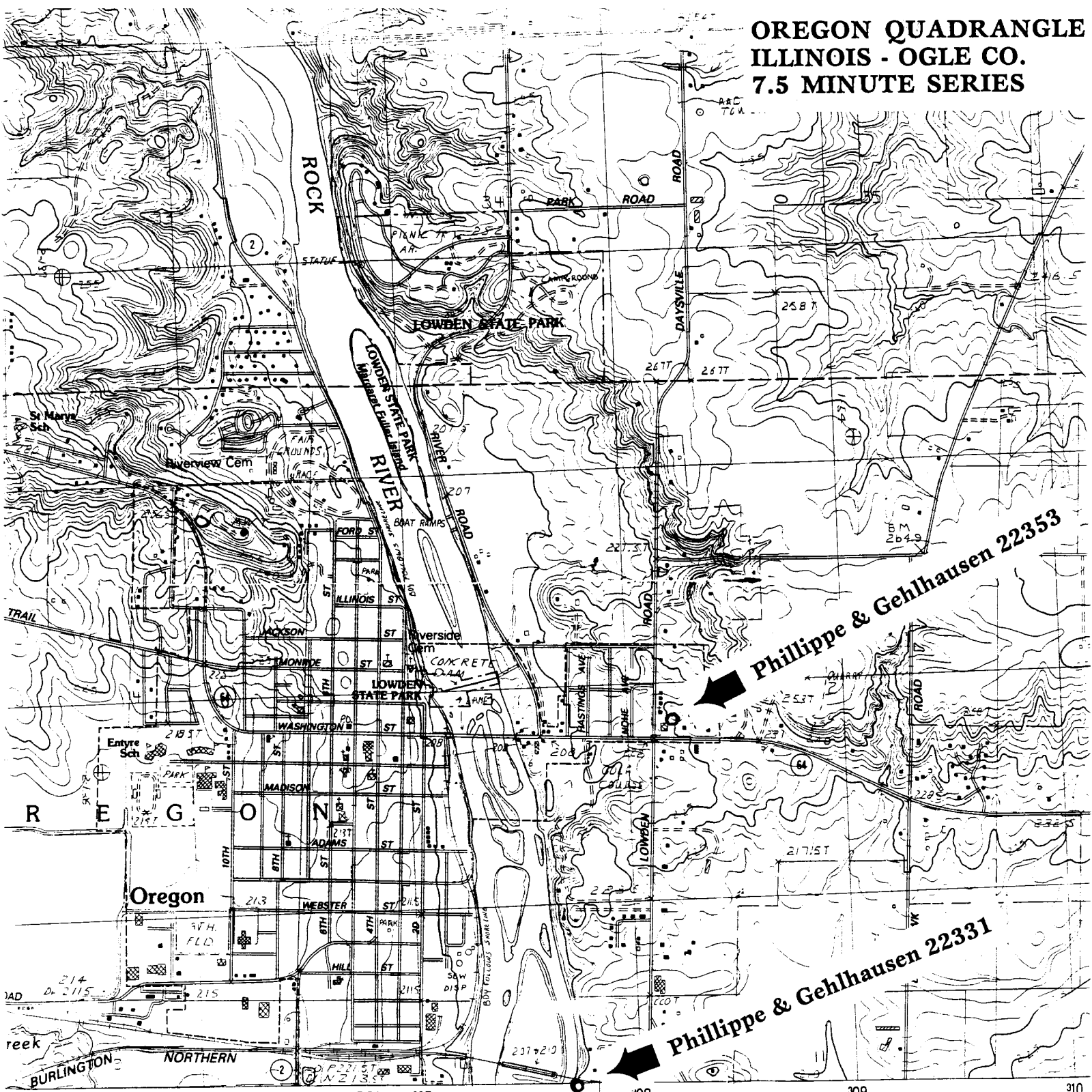
**DAYSVILLE QUADRANGLE
ILLINOIS - OGLE CO.
7.5 MINUTE SERIES**



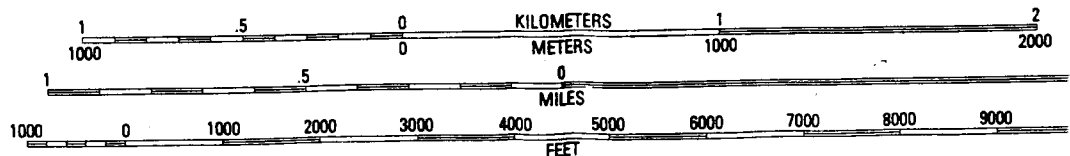
DAYSVILLE QUADRANGLE
ILLINOIS - OGLE CO.
7.5 MINUTE SERIES



**OREGON QUADRANGLE
ILLINOIS - OGLE CO.
7.5 MINUTE SERIES**



SCALE 1:24 000



CONTOUR INTERVAL 3 METERS
CONTROL ELEVATIONS SHOWN TO THE NEAREST 0.1 METER
OTHER ELEVATIONS SHOWN TO THE NEAREST 0.5 METER
To convert meters to feet multiply by 3.2808
To convert feet to meters multiply by .3048

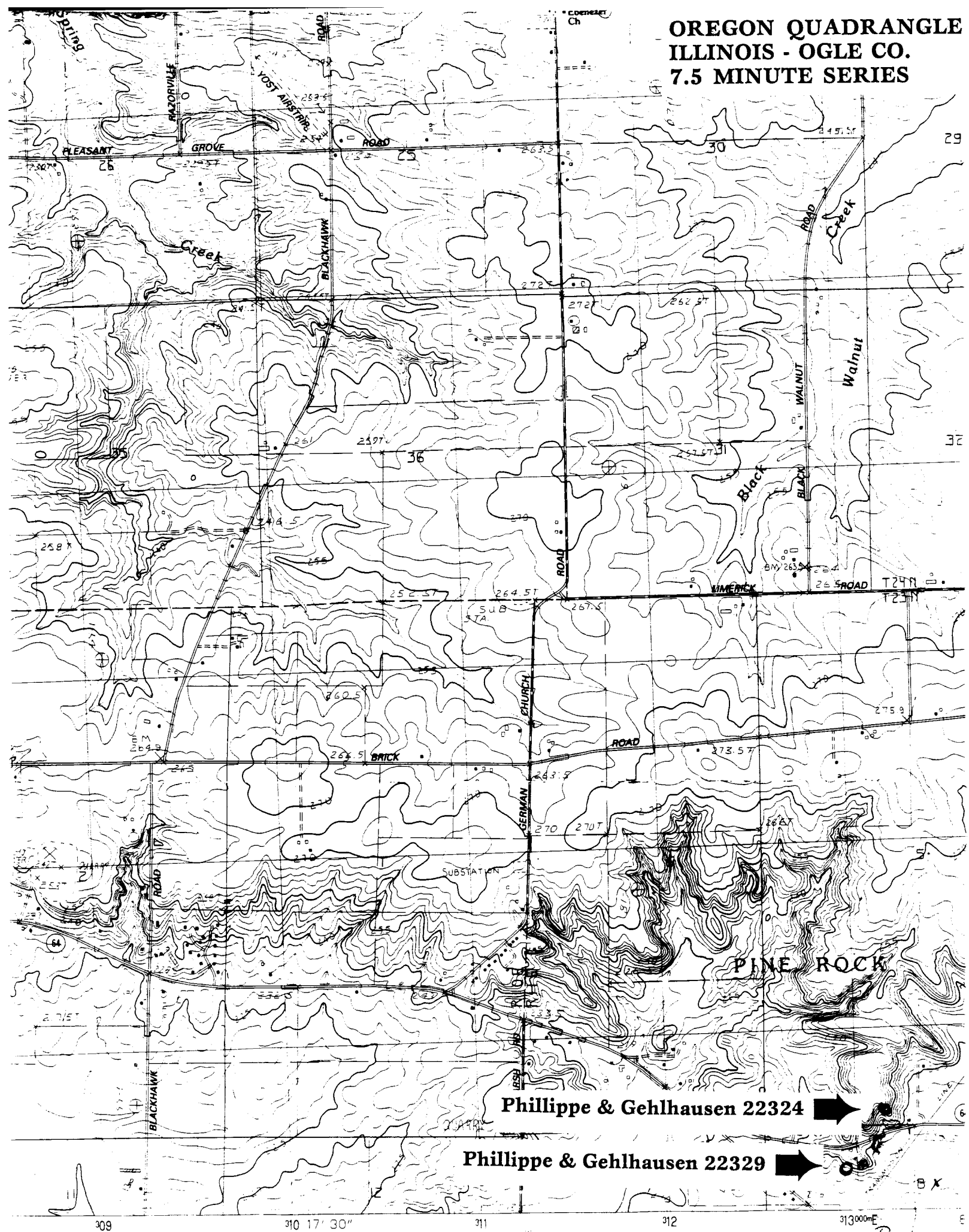
PROVISIONAL MAP
Produced from original
manuscript drawings. Informa-
tion shown as of date of
field check.

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FEDERAL GEOLOGICAL SURVEY, RESTON, VIRGINIA 22092
FEDERAL GEOLOGICAL SURVEY, CHAMPAIGN, ILLINOIS 61820

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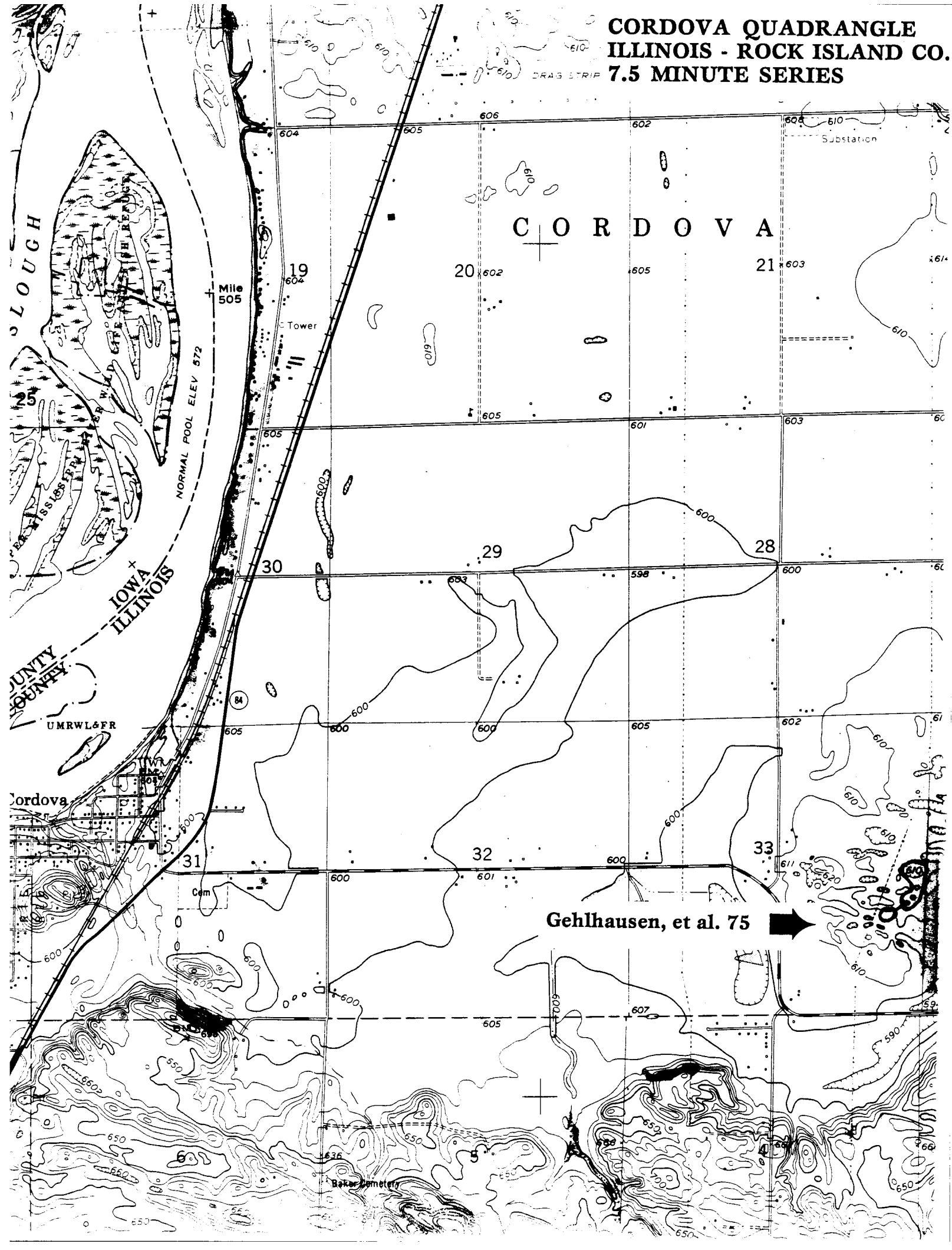
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**OREGON QUADRANGLE
ILLINOIS - OGLE CO.
7.5 MINUTE SERIES**

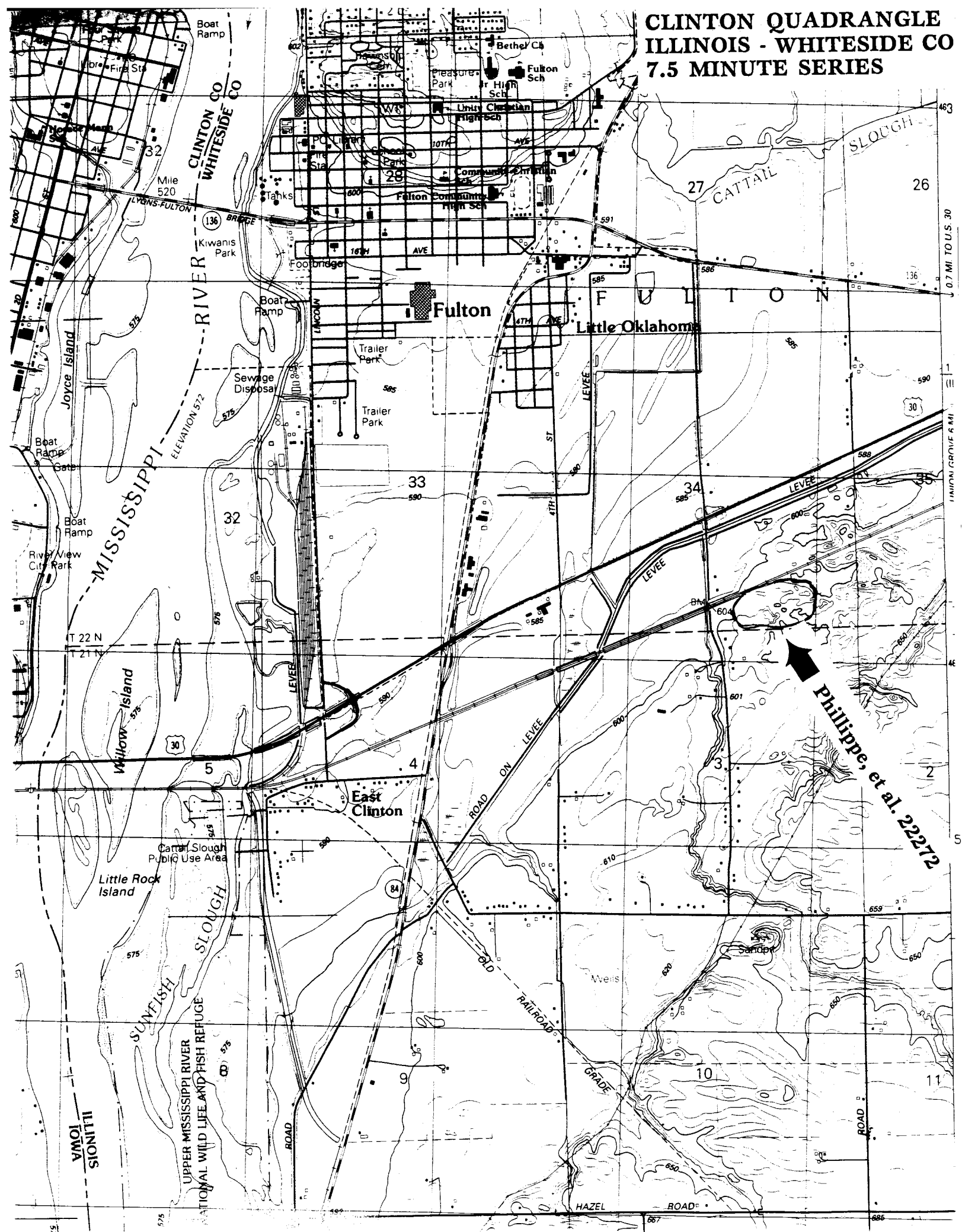
**Phillippe & Gehlhausen 22324**

Phillippe & Gehlhausen 22329

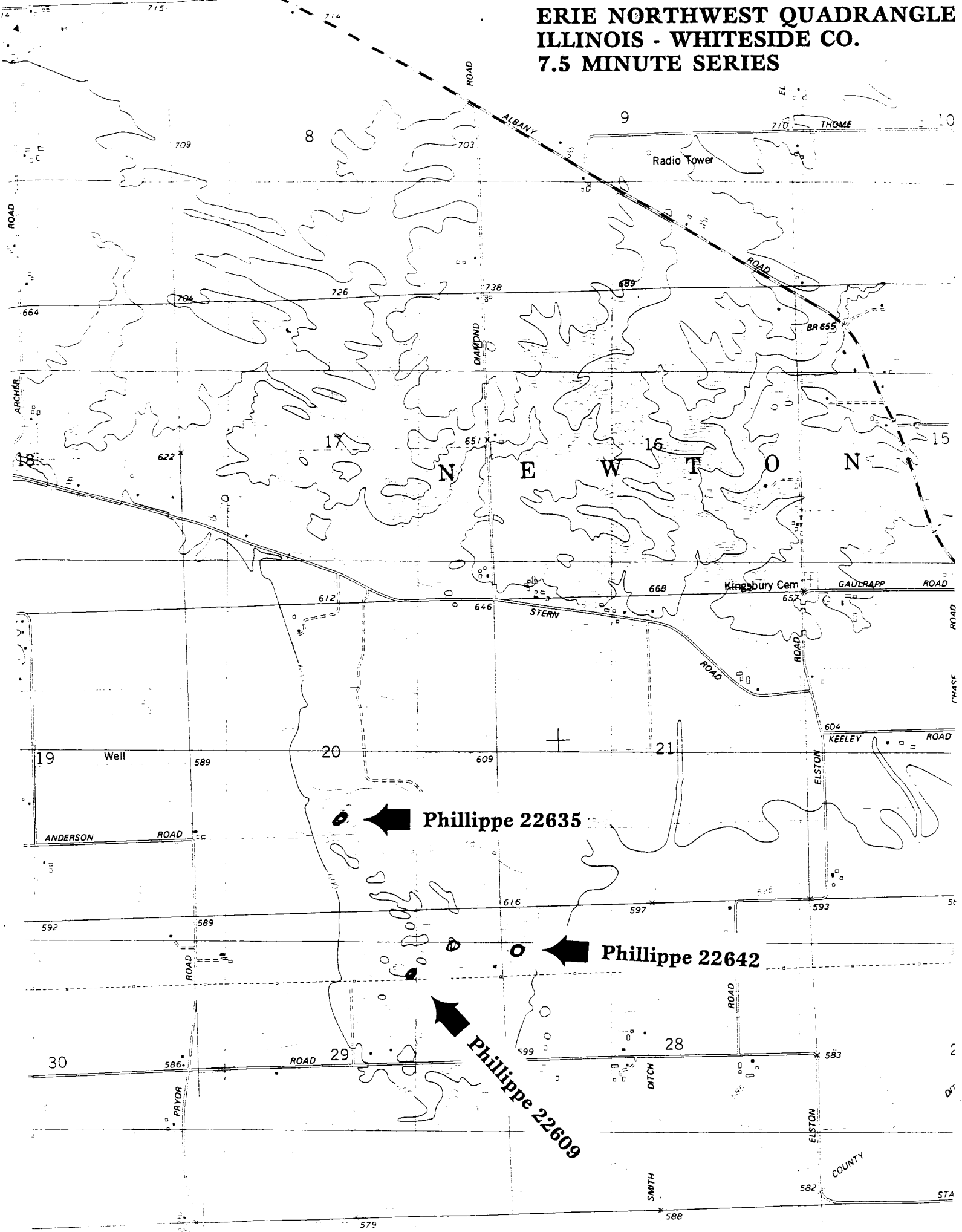
**CORDOVA QUADRANGLE
ILLINOIS - ROCK ISLAND CO.
7.5 MINUTE SERIES**



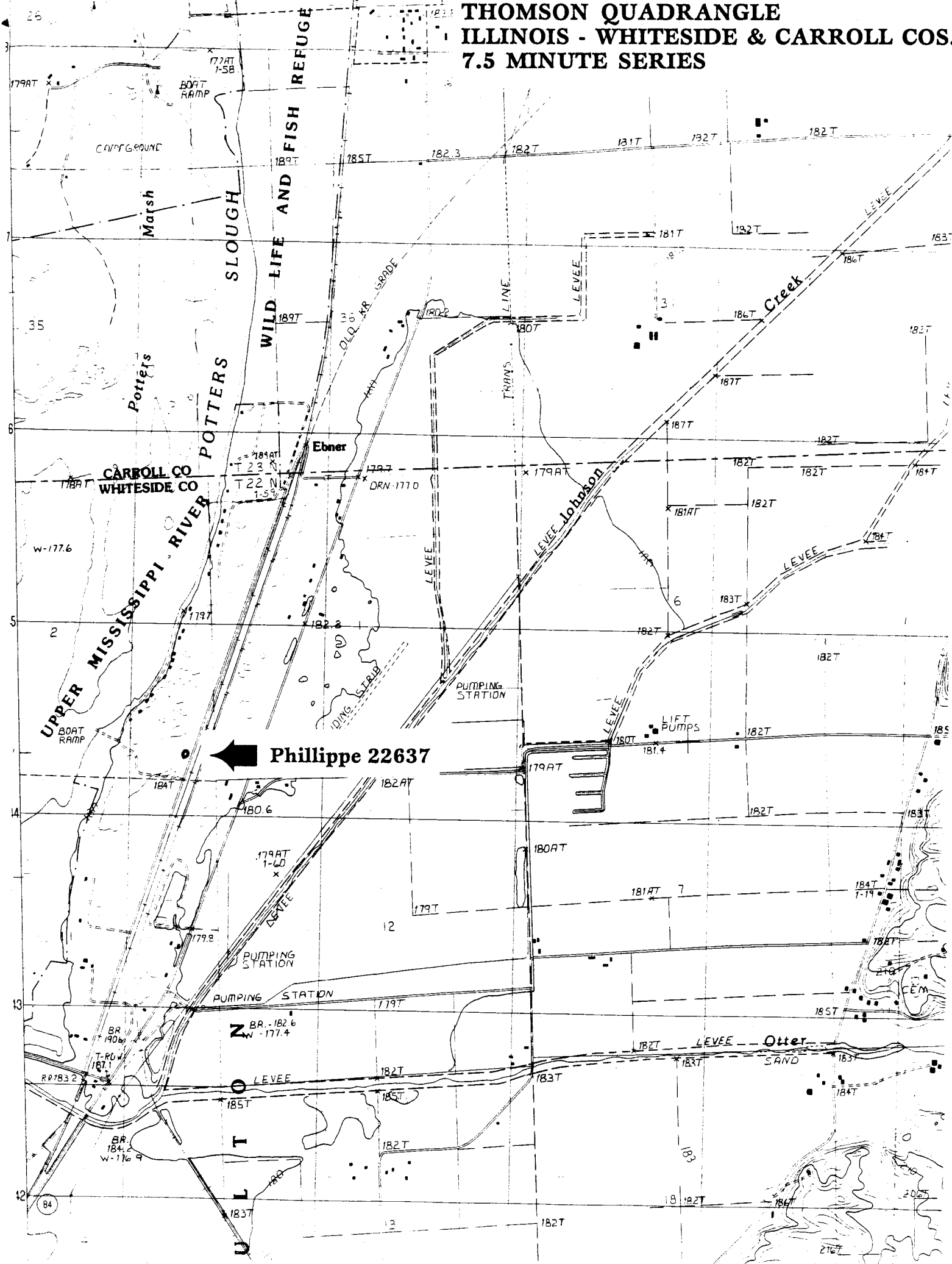
CLINTON QUADRANGLE
ILLINOIS - WHITESIDE CO
7.5 MINUTE SERIES



ERIE NORTHWEST QUADRANGLE
ILLINOIS - WHITESIDE CO.
7.5 MINUTE SERIES



THOMSON QUADRANGLE
ILLINOIS - WHITESIDE & CARROLL COS.
7.5 MINUTE SERIES



SHIRLAND QUADRANGLE
ILLINOIS - WINNEBAGO CO.
7.5 MINUTE SERIES

